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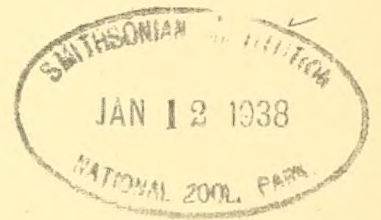
POPULAR EDITION OF

“OUR LIVING WORLD,”

A NATURAL HISTORY

BY

THE REV. J. G. WOOD.



REVISED AND ADAPTED TO

AMERICAN ZOOLOGY,

BY

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THE GRAKLES.

THE GRACULINÆ, or Grakles, form the next group of birds. Formerly a very large number of species were ranked among the members of this group, but the naturalists of the present day have restricted the appellation to comparatively few birds. In all the species the bill is broad at the base, with the ridge of the upper mandible slightly curved, and there is a little notch near the extremity.

THE MINO BIRD is very common in many parts of India and the Indian Islands, where it is frequently captured and domesticated.

It is a bright and lively little bird, wonderfully intelligent, and even conceiving so great an affection for its master, that it is permitted to fly about at will. Many amusing tricks are often taught to the Mino Bird, and it possesses a talent for talking equal to that enjoyed by the magpie, the raven, the starling, or the parrot. So admirable a conversationalist is the Mino Bird that some writers who have had personal experience of its capabilities, think that it surpasses even the gray parrot in its powers of imitating the human voice. It will repeat many words with extraordinary accuracy, and some specimens have learned phrases and sentences of considerable length.

The color of the Mino Bird is a deep velvet-like black, with the exception of a white mark on the base of the quill-feathers of the wing. Around the base of the beak and the forehead the feathers are extremely short and have a velvety sensation to the touch. The bill and the feet are yellow, and on the back of the head are two wattles of a bright yellow color. The food of this bird consists chiefly of berries, fruits, and insects, and in dimensions it is about equal to a common thrush. By the Javanese it is known by the titles of Beö and Mencho, and the Sumatrans call it Teeong.

THE CROWNED GRAKLE is one of the handsomest of the genus to which it belongs, and on account of the peculiar coloring from which it derives its name is a very conspicuous bird.

It inhabits the parts of the jungle where the vegetation is thickest, and interspersed with tall trees, on whose topmost branches the Crowned Grakle loves to settle while engaged in its search after berries, fruits, and the various substances on which it feeds. It is not a very timid bird, and will frequently haunt human habitations, entering the gardens wherever tall trees have been left standing, and whistling cheerily as it flies from one tree or bough to another. When frightened, it signifies its alarm by a harsh, rough screech, but its ordinary notes are full and melodious.

The top of the head and part of the nape, together with the chin and a mark on the centre of several of the primary feathers of the wings, are bright "king's" yellow. Round the eye

is a large comma-shaped patch of bare pink skin, the point of the comma being directed towards the ear. The general color of the body, as well as the short and square-tipped tail, which looks as if it had been snipped off abruptly by a pair of shears, is a very deep green, "shot" with blue in certain lights, and sooty-black in others.

ANOTHER curious group of this large family is known by the name of Buphaginæ, *i. e.*, Beef-eaters, or Ox-peckers, a title which they have earned by their habits. They may be easily known by their remarkably shaped bill, which is wonderfully adapted for the peculiar duties which it has to perform. One of the most common species of this group is the AFRICAN BEEF-EATER, a bird which is found in great numbers both in Southern and Western Africa.

It generally assembles in flocks, and haunts the spots where cattle are kept, alighting upon their backs and setting vigorously to work in digging from beneath their skins the larvæ



AFRICAN BEEF-EATER — *Buphaga erythroryncha*.

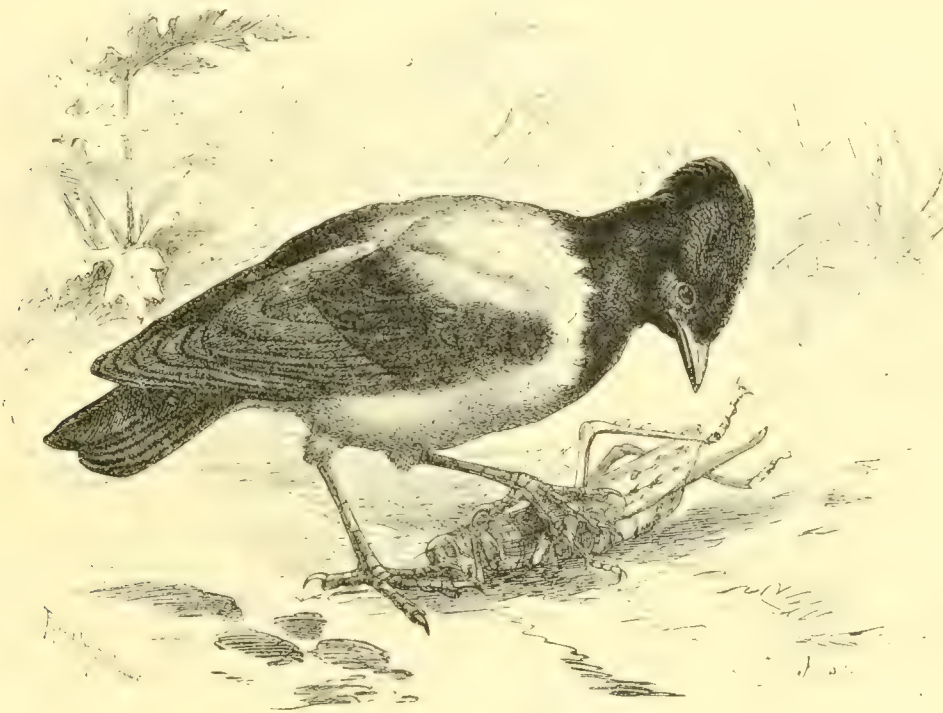
of the bot-flies which burrow beneath the hide, and may often be seen on the backs of cattle by means of the little hillock of skin which they raise. To extract these deeply-buried creatures would seem to be a matter of considerable difficulty, but the Beef-eater manages the matter easily enough, by fixing itself tightly on the animal's back by means of its extremely powerful claws, and working with its strong and oddly-shaped beak. Other animals besides oxen are subject to the attacks of these insect foes, and are equally visited by the Beef-eater, who pursues his beneficial avocation without the least opposition on the part of the suffering animal.

The general color of the African Beef-eater is a dull brown upon the whole of the upper portions of the body, the chin, and the throat. The breast and abdomen are buff-colored, and the upper and under tail-coverts are nearly of the same hue. The tail is wedge-shaped, and of a grayish-brown color, warming into reddish-brown on the inner webs of the exterior feathers. The basal half of the bill is rich orange, and the curiously squared extremity is scarlet. The total length of the bird is between nine and ten inches.

WE now come to the true Starlings, or Sturninæ, as they are scientifically termed. In these birds the bill is almost straight, tapering, and elongated, slightly flattened at the top, and with a hardly perceptible notch. Two examples of this group are found in Europe, the first and rarest of which is the ROSE-COLORED PASTOR.

These birds are very common in many countries, and in some parts of India are so numerous that forty or fifty have been killed at a single shot, and they are said by agriculturists to be hardly less destructive than locusts. Like the common Starling, the Rose-colored Pastor always flies in flocks, and seems to possess many of the habits which belong to the beef-eaters, perching on the backs of cattle and feeding on the parasitic insects and grubs which are generally found in such situations. On account of this habit of frequenting the cattle-field and the sheep-fold, the bird has received the title of Pastor, or shepherd. It feeds chiefly on insects, but in the autumn months varies its diet with ripe fruits.

The Rose-colored Pastor possesses a rather flexible voice; its ordinary cry is rather harsh and grating, but the bird is able to modulate its voice so as to imitate the tones of various



ROSE-COLORED PASTOR.—*Pastor roseus*.

other members of the feathered tribe. One of these birds, that was domesticated by a person who had slightly wounded it and afterwards tended it until it had recovered, was so good a mimic that an excellent judge of songsters, who had heard its voice without seeing the bird from which it proceeded, thought that he was listening to a concert of two starlings, two goldfinches, and some songster, probably a siskin. This bird was fed upon insects and barley-meal moistened with milk.

It is a remarkably pretty and conspicuous bird; the beautiful crest which decorates the crown and the delicate tints of the plumage rendering it easily distinguishable from any of its kin. The head is ornamented with a crest of long, flowing feathers, which are of a jetty black glossed with violet; and the neck, wings, and tail are of the same hue. The chin, throat, front of the neck, thighs, and under tail-coverts are also black, but without the blue gloss. The back, scapularies, breast, sides, and abdomen are of a beautiful rose-pink; the legs and toes are yellowish-brown, and the beak yellow with a dash of rose. The total length of this species is between eight and nine inches. The bird does not attain this beautiful plumage until the third year; in the first year there is no crest at all, and the plumage is simply colored

with different shades of brown and white ; in the second year the crest is comparatively small and scanty, the dark parts of the plumage have a brown tinge, and the rosy parts are dull and washed with gray or brown.

THE common STARLING is one of the handsomest birds, the bright mottlings of its plumage, the vivacity of its movements, and the elegance of its form rendering it a truly beautiful bird.

The color of the Starling is very beautiful, and is briefly as follows : The general tint is an extremely dark purplish-green, having an almost metallic glitter in a strong light. The feathers of the shoulders are tipped with buff, and the wing-coverts, together with the quill-feathers of the tail and wings, are edged with pale reddish-brown. The beak is a fine yellow.

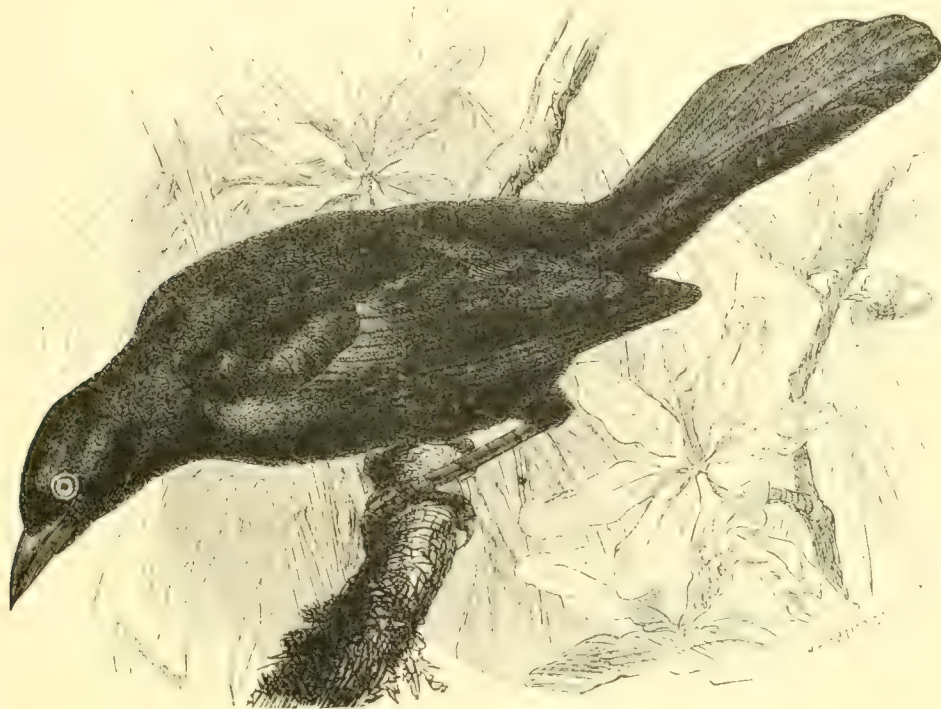


COMMON STARLING and UNICOLORED STARLING.—*Sturnus vulgaris* and *unicolor*.

The feathers of the upper part of the breast are elongated and pointed. This is the plumage of the adult male, and is not brought to its perfection until three years have elapsed. The first year's bird, before its autumnal moult, is almost wholly of a brownish-gray, and after its moult is partly brown and partly purple and green. In the second year the plumage is more decided in its tints, but is variegated with a great number of light-colored spots on the under and upper surfaces, and the beak does not attain its beautiful yellow tinge.

BOAT-TAILED BIRDS.

THE Quiscalinæ, or Boat-tailed Birds, are so named from the peculiar formation of their tails, which, as may be seen on reference to the illustration, are hollowed in a manner somewhat similar to the interior of a canoe. There are several species of Boat-tails, all being natives of America, and being spread over the greater part of our vast country. One of the best known species is the GREAT BOAT-TAIL, or GREAT CROW BLACKBIRD, as it is sometimes called.

GREAT BOAT-TAIL.—*Quiscalus major*.

This bird is rather a large one, being between sixteen and seventeen inches in length, and twenty-two inches across the outspread wings. Its general color is black, glossed with blue, green, and purple, in different lights. It is mostly found in the southern portions of the United States, where it passes under the name of jackdaw, and is seen in vast flocks among the sea islands and marine marshes, busily engaged in finding out the various substances that are left by the retiring tide. It preserves its social disposition even in its nesting, and builds in company among reeds and bushes in the neighborhood of forests and marshy lands. The eggs are of a whitish color and generally five in number. It is a migratory bird, leaving America for winter quarters about the latter end of November, and returning in February and March.

THE BOAT-TAILED GRAKLE (*Quiscalus major*) is another local name in the southern Atlantic States and the Gulf coast.

A species, called Mexican Boat-tailed Grakle, inhabits the southwestern extremity of North America.

THE CROW BLACKBIRD (*Quiscalus purpureus*—formerly *versicolor*), or PURPLE GRAKLE, is a common bird, in the warmer season, in New England, arriving about the first week in April. It is eminently a social bird, forming flocks, and even breeding in numbers on one tree. It rarely produces more than one brood yearly. At times enormous numbers are seen congregating.

The Bronzed Grackle is a variety of the Purple. It breeds in Maine, and in Illinois it is resident throughout the year.

The Florida Grackle is much smaller, and seems to be confined to the peninsula of Florida. It is also regarded as a variety of the Purple Grackle.

THE RUSTY BLACKBIRD (*Scolecophagus ferrugineus*) is a visitor in New England during the spring and fall months, when migrating. In Virginia and southwards, these birds are very abundant in the winter. They also extend westward. Occasionally they have been found breeding in Maine. This blackbird is unsocial and retiring, and on that account is not often seen. It visits the low, swampy thickets.

BREWER'S BLACKBIRD (*Scolecophagus breweri*), named for Dr. Brewer, the eminent ornithologist of Boston, Massachusetts, is found on the high, western plains, and thence to the Pacific, and southwards to California and Mexico. It is considerably larger than the preceding.

HANG-NEST BIRDS.

THE ICTERINÆ, or Hang-nest Birds, now claim our attention. These birds are remarkable for the hammock-like nest which they construct, and the wonderful skill with which they adapt its structure to the exigencies of the climate or locality.

ONE of the most familiar examples of these birds is the ORCHARD ORIOLE, popularly known by the title of Bobolink throughout the countries which it inhabits.

This bird, in common with other allied species, is so extremely varied in its plumage, according to its age and sex, that several species were confounded together in the most perplexing manner, until Wilson succeeded, by dint of patient observation, in unravelling the tangled web which had been woven by other writers.

The nest of the Orchard Oriole is a truly wonderful structure, woven into a bag or purse-like shape from long grasses, almost as if it had been fashioned in a loom, and so firmly constructed that it will withstand no small amount of rough treatment before its texture gives way. In one of these purse-like nests now lying before me, I find that the bird often employs two and sometimes three threads simultaneously, and that several of these double threads pass over the branch to which the nest is hung, and are then carried to the very bottom of the purse, so as to support the structure in the firmest possible manner. The entrance is from above, and near the mouth; the nest is comparatively slight in texture, becoming thicker and more compact near the foot, where the eggs and young are laid. The interior of the nest is generally lined with some soft, downy seeds. So admirably does the bird's beak weave this remarkable nest, that an old lady to whom Wilson exhibited one of these structures, remarked that the Orchard Oriole might learn to darn stockings.

The size and form of the nest may vary very greatly according to the climate in which the bird lives, and the kind of tree on which its home is placed. Should the nest be suspended to the firm, stiff boughs of the apple or other strong-branched tree, it is comparatively shallow, being hardly three inches in length, and rather wider than it is deep. But if it should be hung to the long and slender twigs of the weeping willow, as is often the case, the nest is lengthened until it is four or five inches in depth, the size of the entrance remaining the same as in the shallower nest. This variation in structure is evidently intended to prevent the eggs or young from being shaken out of their home by the swaying of the boughs in the wind. The same amount of material appears to be used in either case, so that the elongated nest is not so thick as the short one. My own specimen is an example of the elongated structure. Moreover, in the warmer parts of America, the nest is always much slighter than in the colder regions, permitting a free circulation of air through its walls.

The habits of this bird are very curious and interesting, and are well described by Wilson in his well-known work on the Birds of America:—

“The Orchard Oriole, though partly a dependent on the industry of the farmer, is no sneaking pilferer, but an open and truly beneficent friend. To all those countless multitudes of destructive bugs and caterpillars that infest the fruit-trees in spring and summer, preying on the leaves, blossoms, and embryo of the fruit, he is a deadly enemy; devastating them wherever he can find them, and destroying on an average some hundreds of them every day without offering the slightest injury to the fruit, however much it may stand in his way. I have witnessed instances where the entrance to his nest was more than half closed by a cluster of apples, which he could easily have demolished in half a minute; but, as if holding the property of his patron sacred, or considering it a natural bulwark to his own, he slid out and in with the greatest gentleness and caution.

“I am not sufficiently conversant with entomology to particularize the different species on which he feeds, but I have good reason for believing that they are almost altogether such as commit the greatest depredations on the fruits of the orchard; and, as he visits us at a time when his services are of the greatest value, and, like a faithful guardian, takes up his station where the enemy is most to be expected, he ought to be held in respectful esteem, and protected by every considerate husbandman. Nor is the gaiety of his song one of his least recommendations. Being an exceedingly active, sprightly, and restless bird, he is on the ground—in the trees—flying and carolling in his hurried manner, in almost one and the same instant. His notes are shrill and lively, but uttered with such rapidity and seeming confusion, that the ear is unable to follow them distinctly. Between these he has a single note, which is agreeable and interesting.

“Wherever he is protected, he shows his confidence and gratitude by his numbers and familiarity. In the Botanic Gardens of my worthy and scientific friends, the Messrs. Bartrams, of Kingess, which present an epitome of everything that is rare, useful, and beautiful in the vegetable kingdom of this western continent, and where the murderous gun scarce ever intrudes, the Orchard Oriole revels without restraint through thickets of aromatic flowers and blossoms, and, heedless of the busy gardener that labors below, hangs his nest in perfect security on the branches over his head.”

Audubon, also, has taken great interest in this bird, and has devoted a considerable portion of his work to the elucidation of its habits.

“No sooner have they reached that portion of the country in which they intend to remain during the time of raising their young, than the birds exhibit all the liveliness and vivacity belonging to their nature. The male is seen rising in the air from ten to twenty yards in a violent manner, jerking his tail and body, flapping his wings, and singing with remarkable impetuosity, as if under the influence of haste, and anxious to return to the tree from which he has departed. He accordingly descends with the same motions of the body and tail, repeating his pleasing song as he alights.

“These gambols and warblings are performed frequently during the day, the intervals being employed in ascending or descending along the branches and twigs of different trees in search of insects or larvæ. In doing this they rise on their legs, seldom without jetting the tail, stretch the neck, seize the prey, and emit a single note, which is sweet and mellow, although in power much inferior to that of the Baltimore. At other times it is seen bending its body downwards in a curved posture, with the head gently inclined upwards, to peep at the outer part of the leaves, so as not to suffer any part to escape its vigilance. It soon alights on the ground when it has espied a crawling insect, and again flies towards the blossoms, in which are many lurking, and devours hundreds of them each day, thus contributing to secure to the farmer the hopes which he has of the productiveness of his orchard.”

One of these birds that was kept in a cage by Wilson proved to be a very interesting creature, chanting its wild clear notes at an early age, and accommodating itself to its captivity with perfect ease. It had a curious love for artificial light, fluttering about its cage, and becoming uneasy at the sight of a lighted candle, and not being satisfied when its cage was placed close to the object of attraction. In that case, it would sit close to the side of the cage, dress its plumage, and occasionally break into snatches of song.

The adult male is nearly black upon its head, neck, back, wings, and tail, a brownish tint being perceptible in the wings. The lower part of the breast, the abdomen, tail-coverts, and some of the wing-coverts, are light reddish-brown, and the greater wing-coverts are tipped with white. The adult female is yellowish olive above, with a brown tinge on the back, and a brown wash over the wings. The whole of the lower parts are yellow, the primary feathers of the wings are slightly edged with yellowish white, and the same color is found on the edges of the secondaries and greater coverts, and on the tips of the lesser coverts. The length of the bird is between six and seven inches. The young male is like the female during his first year, but in his second year sundry feathers of black make their appearance in various parts of the body, and in the third year they spread over the upper surface and breast, as has already been mentioned.

The Orchard Orioles arrive in Pennsylvania rather later than the Baltimores—usually about the first week in May. Early in September they take their departure. In New England they are not often seen. They are easily raised from the nest, and prove very agreeable pets.

Since the days of Audubon and Wilson, several species have been discovered. The Hooded, Scott's Waglers, and Bullocks, are among them. The Troopial is another and splendid species, larger than the others. Another is named for Audubon; all found in the West and Southwest.

THE BALTIMORE ORIOLE (*Icterus galbula*) is an inhabitant of the whole of Northern America, its range extending from Canada to Mexico—even as far south as Brazil.

It is a migratory bird, arriving about the beginning of May, and departing towards the end of August or the beginning of September. The name of Baltimore Oriole has been given to it because its colors of black and orange are those of the arms belonging to Lord Baltimore, to whom Maryland formerly belonged. This species is remarkably familiar and fearless of man, hanging its beautiful pensile nest upon the garden-trees, and even venturing into the streets wherever a green tree flourishes, and chanting its wild mellow notes in close proximity to the sounds and sights of a populous city.

The nest of the Baltimore Oriole is somewhat similar to that of the preceding species, although it is generally of a thicker and tougher substance, and more ingeniously woven. The materials of which this beautiful habitation is made are flax, various kinds of vegetable fibres, wool and hair, matted together, so as to resemble felt in consistency. A number of long horsehairs are passed completely through the fibres, sewing it firmly together with large and irregular, but strong and judiciously placed stitching. In one of these nests Wilson found that several of the hairs used for this purpose measured two feet in length. The nest is in the form of a long purse, and at the bottom is arranged a heap of soft cow's hair and similar substances, in which the eggs find a warm resting-place. The female bird seems to be the chief architect, receiving a constant supply of materials from her mate, and occasionally rejecting the fibres or hairs which he may bring, and sending him off for another load better to her taste.

Since the advent of civilization, the Baltimore Oriole has availed himself largely of his advantages, and instead of troubling himself with a painful search after individual hairs, wherewith to sew his hammock together, keeps a lookout for any bits of stray thread that may be thrown away by human sempstresses, and makes use of them in the place of the hairs. So sharp-sighted is the bird, and so quick are his movements, that during the bleaching season the owners of the thread are forced to keep a constant watch upon their property as it lies upon the grass, or hangs upon the boughs, knowing that the Oriole is ever ready to pounce upon such valuable material, and straightway to weave it into his nest. Pieces of loose string, skeins of silk, or even the bands with which young grafts are tied, are equally sought by this ingenious bird, and often purloined to the discomfiture of the needlewoman or the gardener. The average size of the nest is six or seven inches in depth, and three or four in diameter. Wilson thinks that the bird improves in nest-building by practice, and that the best specimens of architecture are the work of the oldest birds.

The eggs are five in number, and their general color is whitish pink, dotted at the larger

end with purplish spots, and covered at the smaller end with a great number of fine intersecting lines of the same hue. The food of the Baltimore Oriole seems to be almost entirely of an animal nature, and to consist of caterpillars, beetles, and other insects, most of them injurious to the farmer or the gardener.

The coloring of this bird is as follows : The head and throat, together with the upper part of the back and the wings, are deep black, with the exception of an orange bar upon the shoulders. The lower part of the back and the whole of the under surface are bright orange, warming into scarlet on the breast. The edges of the secondaries, the exterior edges of the greater wing-coverts, and part of those of the primaries, are white. The tail is rather curiously colored, and thus described by Wilson : "The tail-feathers under the coverts, orange ; the two middle ones from thence to the tips are black, the next five on each side black near the coverts, and orange towards the extremities, so disposed that when the tail is expanded and the coverts removed, the black appears in the form of a pyramid supported on an arch of orange." The female is dull black upon the upper parts and mottled with brownish-yellow, each feather being marked with that tint upon the edges. The lower part of the back and all the under portions of the body are dull orange, and the tail is mostly olive-yellow. The wings are dull brown, and marked with yellowish-white upon the coverts.

From these colors the bird has derived the names of Golden Robin and Fire Bird. Its total length is about seven inches.

The Baltimore Oriole belongs to a genus almost wholly American, though what are termed the true Orioles are Old World birds. The song of this bird is a clear, mellow whistle, repeated at short intervals, as he gleams among the branches. There is in it a certain wild plaintiveness and *naïveté* extremely interesting. It is not uttered with the rapidity of the ferrugineus thrush, and some other eminent songsters, but with the pleasing tranquillity of a careless plough-boy, whistling merely for his own amusement. When alarmed by an approach to his nest, or any such circumstance, he makes a kind of rapid chirping—very different from his usual note. This, however, is always succeeded by those mellow tones which seem so congenial to his nature.

High on yon poplar, clad in glossiest green,
The orange, black-capped Baltimore is seen.
The broad, extended boughs still please him best;
Beneath their bending skirts he hangs his nest.—WILSON.

He is several years in getting his full plumage.

ONE of the most curious and handsome birds of this group is termed the CRESTED ORIOLE, on account of the sharp, pointed crest which rises from its head.

It is a native of tropical America, and seems to be rather a familiar bird, often leaving the forests where it usually dwells, and making its home near the habitations of man. Whether in the vast woods of its native land, or whether in the cultivated grounds, it is always to be found in the loftiest trees, traversing their branches in search of food, and suspending its nest from the extremity of the slenderest twigs. It is a very active bird both on foot and in the air, one quality being needful for its movements among the boughs while getting berries, and the other for the chase of the various insects with which it varies its diet.

The nest of the Crested Oriole is a very elegant structure, much larger than that of either of the preceding species, being sometimes not less than three feet in length. It is always hung from the very extremity of some delicate twig, so as to escape the marauding hand of the monkey, or the dreaded fangs of the snake ; and as a great number of these are generally found upon one tree, the combined effect, together with the busy scene of the parent birds continually going and returning from their homes, is remarkably fine. The shape of the nest is cylindrical, swelling into a somewhat spherical form at the bottom ; and it is found that both birds take an equal share of work in its construction.

The Crested Oriole is very beautifully as well as curiously colored. The head, shoulders, breast, and abdomen are warm chocolate-brown, and the wings are dark green, changing

gradually into brown at their tips. The central feathers of the tail are dark brown, and the remaining feathers are bright yellow. There is also a green tinge upon the thighs and the middle of the breast. Upon the top of the head there is a long and pointed crest, and the horny



CRESTED ORIOLE.—*Ostinops cristata*.

portion of the bill is green, and, as may be seen in the illustration, extends above the eye. The legs and feet are black. The Crested Oriole is larger than either of the preceding species, being about the size of a common jackdaw.

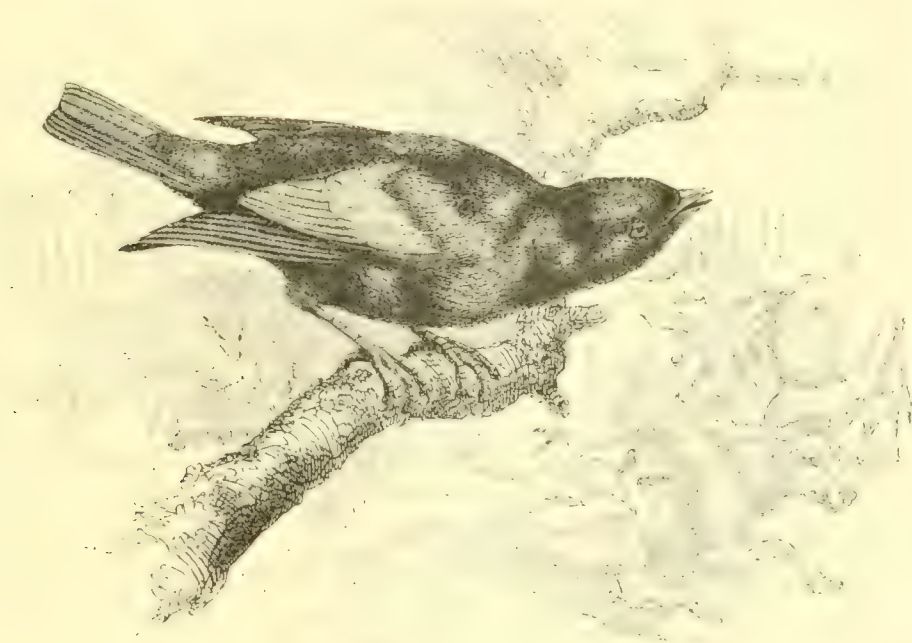
IN the Cow BIRD, or Cow TROOPIAL, of America, we have a curious instance of the frequency with which a remarkable habit, supposed to be almost unique, and especially characteristic of some particular species, is found to occur in a totally distinct species inhabiting another continent. That the cuckoo of Europe is no nest-maker, but only usurps the homes of other birds, and forces them to take care of its progeny, is a well-known fact, and it is really remarkable that the Cow Bird, which inhabits the opposite quarter of the globe, and belongs to an entirely different order of birds, should follow the same principle.

Before commencing the description of this bird, I must caution the reader against mistaking the present species for the American cuckoo, which is by many persons called the Cow Bird on account of its cry, which resembles the word "cow, cow," frequently repeated. The American cuckoo is free from the intrusive habits of the Cow Troopial, and not only builds its own nest, but rears and tends its young with great affection.

The Cow Bird (*Molothrus ater*) is one of the migrators, arriving in Pennsylvania about the end of March or the beginning of April, and is somewhat gregarious, being found in little

parties, generally accompanied by the red-winged starling, which bird will soon be described. Towards the middle or end of October, the Cow Birds begin to leave the place of their temporary residence, and again assembling in flocks, together with the red-winged starling, take their departure for their winter quarters in Carolina and Georgia. While remaining in the country, they are generally seen near streams, perched on the trees that skirt rivers and creeks. It is a rather curious fact that during the months of July and August, the Cow Troopials suddenly vanish, and are not seen again till September, when they make their appearance in considerable numbers. Whether they take a journey during that time, or whether retire into the depths of the forest, is not clearly ascertained.

Unlike the generality of birds, the Cow Bird seems to be actuated by no attachment to those of the opposite sex. No pairing has yet been observed, nor does the male bird take possession of a number of females, as is the case with many species. Indeed, there would be no need for such an alliance, for the female Cow Bird makes no nest, neither does she trouble



COW TROOPIAL.—*Molothrus pecorus*.

herself about rearing her young, but searching out for the nest of some little bird, she deposits her own egg among the number, and then leaves it to its fate. The remarkable feature in the matter is, that the poor bird on whom this intruder has been foisted invariably takes charge of it in preference to its own offspring, and will always rear the young Cow Bird, even though the whole of its own offspring perish.

There seems to be in the Cow Bird an irresistible attractive power, forcing other birds to take charge of it and attend to its wants. This supposition is strengthened by the conduct of a cardinal grosbeak, kept by Wilson, into whose cage was introduced a young Cow Bird just taken out of the nest of a Maryland yellow throat. At first, the grosbeak examined the intruder with some reserve, but as soon as the stranger began to cry for food, the grosbeak took it under its protection, tended it carefully, brought it food, tore large insects to pieces in order to suit the capacity of the young bird's mouth, cleaned its plumage, taught it to feed itself, and exhibited towards it all a mother's care. Wilson writes as follows, after describing the singular habits of this bird :—

“From twelve to fourteen days is the usual time of incubation with our small birds ; but, although I cannot fix the precise period requisite for the Cow Bunting's eggs, I think I can almost positively say that it is a day or two less than the shortest of the above-mentioned

species. In this singular circumstance we see a striking provision ; for, did this egg require a day or two more, instead of so much less, than those among which it has been dropped, the young it contained would, in almost every instance, most inevitably perish, and thus, in a few years, the whole species must become extinct. On the first appearance of the young Cow Bunting, the parent being frequently obliged to leave the nest to provide sustenance for the foundling, the business of incubation is thus, necessarily, interrupted ; the disposition to continue it abates. Nature has now given a new direction to the zeal of the parent, and the remaining eggs, within a week or more at most, generally disappear. In some instances, indeed, they have been found on the ground, near or below the nest, but this is rarely the case. I have never known more than one egg of the Cow Bunting in the same nest. The egg is somewhat larger than that of the Bluebird, thickly sprinkled with grains of pale brown on a dirty white brown."

The Cow Bird is pretty evenly distributed over the United States, from the Atlantic to the Pacific, though it is rare in Maine, and on the coast of the Pacific is not often seen.

The Cow Bird derives its name from its habit of haunting the pasture-lands for the purpose of feeding upon the numerous flies and other insects that are always to be found in the vicinity of cattle ; it is also known under the titles of Cow Bunting, and Cow-pen Bird.

The coloring of the Cow Bird is pleasing, though not brilliant. The head and neck are of a dark drab, and have a kind of silken gloss ; the whole of the upper surface and abdomen are black, "shot" with green, and the upper part of the breast is dark violet. When young it is altogether brown, and the darker tints make their appearance by degrees, showing themselves in patches here and there, which enlarge as the bird grows older, and finally overspread the entire body. The length of the bird is about seven inches.

THE MEADOW LARK (*Sturnella*). Wilson says of this bird : "Though this well-known species cannot boast of the powers of song which distinguishes that 'harbinger of day,' the Skylark of Europe, yet in richness of plumage, as well as sweetness of voice, as far as his few notes extend, he stands eminently his superior. He differs from the greater part of his tribe in wanting the long, straight hind-claw, which is probably the reason why he has been classed by some late naturalists with the Starlings. But in the particular form of his bill, and his manners, plumage, mode and place of building his nest, Nature has clearly pointed out his proper family. The species has a very extensive range, having myself found them in Upper Canada, and in each of the States. Extensive and luxuriant prairies near St. Louis, Missouri, abound with them."

These birds, after the breeding season is over, collect in flocks, but seldom fly in a close, compact body. Their flight is something like that of the grouse, or partridge, laborious and steady, sailing and renewing the rapid action of the wings alternately. When they alight on trees or bushes, it is generally on the tops of the highest branches, whence they send forth a long, clear, and somewhat melancholy note, that, in sweetness and tenderness of expression, is not surpassed by any of our numerous warblers. This is sometimes followed by a kind of low, rapid chattering, the particular call of the female ; and again the clear and plaintive strain is repeated, as before.

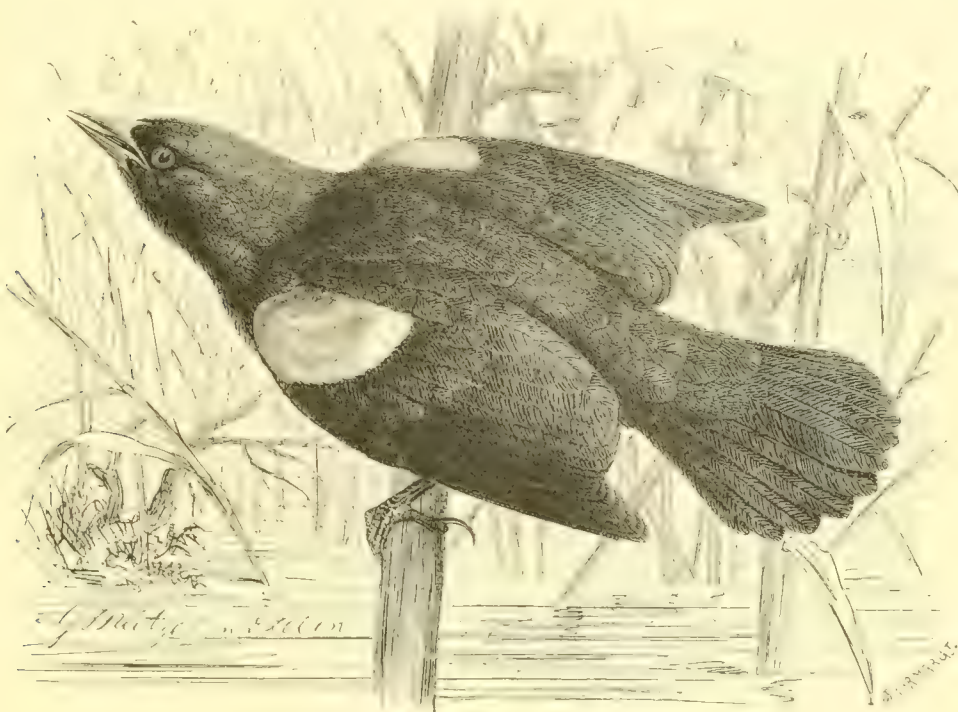
Two varieties are noticed—one of them found in Mexico, and the other in the Western States

THE RED-WINGED STARLING is one of those birds which may either be looked upon as most beneficial or most hurtful to the coasts in which they live, according to the light in which they are viewed.

From the farmer's point of view, it is one of his worst enemies, as it eats vast amounts of grain, and assembles in such enormous flocks that the fields are black with their presence, and the sun is obscured by the multitude of their wings. The soft immature grain of the Indian corn is a favorite food with the Red-winged Starlings, and, according to Wilson, "reinforced by numerous and daily flocks from all parts of the interior, they pour down on the low countries in prodigious multitudes. Hence they are seen like vast clouds, wheeling and driving

over the meadows and deserted corn-fields, darkening the air with their numbers. They commence the work of destruction on the corn, the husks of which, though composed of numerous envelopments of closely wrapped leaves, are soon completely torn off; while from all quarters myriads continue to pour down like a tempest, blackening half an acre at a time, and if not disturbed repeat their depredations till little remains but the cob and the shrivelled skins of the grain. From dawn to nearly sunset this open and daring devastation is carried on, under the eye of the proprietor; and a farmer who has very considerable extents of corn would require half a dozen men at least with guns to guard it, and even then all their vigilance and activity could not prevent a ground-tithe of it from becoming the prey of the blackbirds."

In consequence of their depredations the Red-winged Starling is persecuted in every possible way. Every man and boy who has a gun takes it and shoots at the "blackbirds,"



RED-WINGED STARLING.—*Agelaius phoeniceus*.

every urchin who can throw a stone hurls it at their blackening flocks, and even the hawks come from far and near to the spot where these birds are assembled, and make great havoc among them. As they are in the habit of resting at night among the reeds that grow in profusion upon the morasses, the farmers destroy great multitudes of them by stealing quietly upon their roosting-places at night and setting fire to the dry reeds. The poor birds being suddenly awakened by the noise and flames, dart wildly about, and those who escape the fire generally fall victims to the guns of the watchful farmer and his men. Thousands of birds are thus killed in a single night, and as their flesh is eatable, though not remarkable for its excellence, the party return on the following morning for the purpose of picking up the game.

Such are the devastations wrought by the Red-winged Starling, and on the first glance they appear so disastrous as to place the bird in the front rank of winged pestilences. But there is another side of the question, which we will now examine.

During the spring months these birds feed almost exclusively upon insects, especially preferring those which are in their larval state, and devour the young leaves of growing crops. These destructive grubs are hunted by the Red-winged Starling with the greatest perseverance, seeing that upon these the existence of themselves and their young entirely depends. Whether a grub be deeply buried in the earth, eating away the root of some doomed plant,

whether it be concealed among the thick foliage which it is consuming, or whether it be tunnelling a passage into the living trunk of the tree, the Red-winged Starling detects its presence and drags it from its hiding-place. From many dissections which he made, Wilson calculated that on the very smallest average each bird devours at least fifty larvæ per diem, and that it probably eats double that number. But, taking the former average as the true one, and multiplying it by the number of Red-winged Starlings which are known to visit the country, he calculates that these birds destroy sixteen thousand millions of noxious insects in the course of each breeding season, even supposing that they do not eat a single insect after the young are able to shift for themselves.

The nest of this bird is made among the rank foliage of marshy and low-lying soils, and is not unfrequently placed upon the bare ground. The materials of which it is made are fine reeds, roots, and grasses, lined with soft herbs. In order to keep the nest in its place among the loose and yielding substances in which it is placed, the bird fastens the twigs or herbage together by intertwining them with the exterior rushes which edge the nest, and sometimes fastens the tops of the grass-tufts together. The eggs are five in number, pale blue in color, and marked with pale purplish blotches and many lines and shades of black. The male bird is extremely anxious about his home, and whenever he fears danger from an intruder, he enacts a part like that which is so often played by the lapwing of England, and by feigning lameness and uttering pitiful cries as he flutters along, endeavors to entice the enemy from the vicinity of its nest. The young birds are able to fly about the middle of August, and then unite in large flocks.

When captured young it soon accommodates itself to its new course of life, becomes very familiar with its owner, and is fond of uttering its curious song, puffing out its feathers and seeming in great spirits with its own performance.

The color of the adult male is deep glossy black over the greater part of the body, reddish-brown upon the first row of the wing-coverts, and a rich bright scarlet decorating the remaining coverts. In length it measures about nine inches. The female is much smaller than her mate, being only seven inches long, and is colored in a very different manner. The greater part of the plumage is black, each feather being edged with light brown, white, or bay, so that she presents a curiously mottled aspect. The chin is cream, also with a dash of red; two stripes of the same color, but dotted with black, extend from the nostrils over the eyes, and from the lower mandible across the head. There is a stripe of brown-black passing from the eye over the ear-coverts, and the whole of the lower parts are black streaked with creamy white. The young males resemble the females in their coloring, and as they advance in age present feathers of the characteristic black and red in different parts of their plumage. Not until several years have elapsed is the male joyous in his full plumage, and it is seldom that a perfectly black and scarlet bird is found, some of the feathers generally retaining their juvenile brown and bay.

THE RED-WINGED BLACKBIRD (*Agelaius phœniceus*), or Starling, so-called. Wilson takes up the charges against this bird for theft, and disposes in this wise: "In investigating the nature of these, I shall endeavor to render strict historical justice, adhering to the honest injunctions of the poet:—

‘ Nothing extenuate,
Nor set down aught in malice.’

Let the reader divest himself of prejudice, and we shall be at no loss to ascertain his true character. These birds arrive in Pennsylvania late in March, and are known as Swamp Blackbird, Marsh Blackbird, Corn-thief, Red-wing Starling, and Red and Buff-shouldered Blackbird. The male is notably very much larger than the female. It is common from the Atlantic to the Pacific.

THE RED-SHOULDERED BLACKBIRD is a variety found in the Western States, and confined to the Pacific coast.

THE RED AND WHITE-SHOULDERED BLACKBIRD (*Agelaius tricolor*) is also found exclusively on the western portion of the continent.

THE YELLOW-HEADED BLACKBIRD (*Xanthocephalus icterocephalus*) is a large species, inhabiting the region from Illinois to Texas, and thence to the Pacific, preferring the prairies. Dr. Cooper states that the only song this bird has consists of a few hoarse chuckling notes and comical squeakings, uttered as if it were a great effort to make any noise at all. Its voice is regarded as the harshest of any known bird. It is very abundant in California. It walks on the ground much in the same steady manner of the Cow Bird.

FEW of the American birds are better known than the RICE TROOPIAL, which is familiar over the greater part of that continent.

No American zoologist omits a notice of the Rice Troopial, and there are few writers on country life who do not mention this little bird under one of the many names by which it is known. In some parts of the States it is called the RICE BIRD, in another the REED BIRD, in another the RICE or REED BUNTING, while its more familiar title, by which it is called throughout the greater part of America, is BOBOLINK, or BOB-LINKUM. It also occasionally visits Jamaica, where it gets very fat, and is in consequence called the BUTLER BIRD. Its title of Rice Troopial is earned by the depredations which it annually makes upon the rice crops, though its food is by no means restricted to that seed, but consists in a very large degree of insects, grubs, and various wild grasses.

Like the preceding species, it is a migratory bird, residing during the winter months in the southern parts of America and the West Indian Islands, and passing in vast flocks northwards at the commencement of the spring. Few birds have so extensive a range as the Rice Troopial, for it is equally able to exist in the warm climates of tropical America and the adjacent islands, and in the northerly regions of the shores of the St. Lawrence.

According to Wilson, their course of migration is as follows: "In the month of April, or very early in May, the Rice Buntings, male and female, arrive within the southern boundaries of the United States, and are seen around the town of Savannah, in Georgia, about the fourth of May, sometimes in separate parties of males and females, but more generally promiscuously. They remain there but a short time, and about the twelfth of May make their appearance in the lower part of Pennsylvania as they did in Savannah. While here, the males are extremely gay and full of song, frequenting meadows, newly-ploughed fields, sides of creeks, rivers, and watery places, feeding on mayflies and caterpillars, of which they destroy great quantities. In their passage, however, through Virginia at this season, they do great damage to the early wheat and barley while in its milky state. About the 20th of May, they disappear on their way to the north. Nearly at the same time they arrive in the State of New York, spread over the whole New England States, as far as the river St. Lawrence, from Lake Ontario to the sea, in all of which places, north of Pennsylvania, they remain during the summer, building and rearing their young."



RICE TROOPIAL, OR BOBOLINK.—*Dolichonyx oryzivorus*.

As soon as the young are able to fly, the Rice Troopials collect in vast flocks, and settling down upon the reeds and wild oats, feed so largely that they become very fat, and are thought to be equal in flavor to the celebrated ortolan of Europe. Multitudes of these birds are killed for sale, and are exposed in the dealer's shop tied together in long strings.

Of the family *Icteridæ* there are twenty-two species inhabiting North America, the Bobolink (*Dolichonyx orizivorus*) being a most familiar one.

To the rice planters of the Southern States this bird is not welcome; for the immense flocks that visit the rice fields do incalculable mischief and loss. "They arrive about the middle of May in the New England States. Their song in spring is exceedingly interesting, and, emitted with a volubility bordering on the burlesque, is heard from a whole party at the same time; and it becomes amusing to hear thirty or forty of them, beginning one after another, as if ordered to follow in quick succession, after the first notes are given by a leader, and preceding such a medley as is impossible to describe. Although it is extremely pleasant to hear, while you are listening, the whole flock simultaneously ceases, which appears equally extraordinary. This curious exhibition takes place every time a flock has alighted on a tree."—AUDUBON.

Wilson says of him: "The song of the male, while the female is sitting, is singular and very agreeable. Mounting and hovering on wing, at a small height over a field, he chants out such a jingling melody of short, variable notes, uttered with such seeming confusion and rapidity, and continued for a considerable time, that it appears as if a half a dozen birds of different kinds were all singing together. Some idea may be had of this song by striking the high keys of a pianoforte at random, singly and quickly, making as many sudden contrasts of high and low notes as possible. Many of the tones are in themselves charming, but they succeed each other so rapidly that the ear can hardly separate them."

FINCHES.

WE now arrive at the large and important families of the FINCHES, in which group is contained very many of the more familiar birds, which are popularly known by the title of Finch, together with some distinctive prefix, as well as a large number of less known but not less interesting natives of foreign lands. In all these birds the bill is conical, short and stout, sharp at the extremity, and without any notch in the upper mandible.

The first group of the Finches is composed of a number of species, which, although for the most part not conspicuous either for size, beauty of form, or brilliancy of color, are yet among the most remarkable of the feathered tribe. The nests of the Baltimore and orchard oriole are sufficiently curious examples of bird architecture, but those of the Weaver Birds are even more wonderful. Dissimilar in shape, form and material, there is yet a nameless something in the construction of their edifices, which at once points them out as the workmanship of the Weaver Birds. Some of them are huge, heavy, and massive, clustered together in vast multitudes, and bearing down the branches with their weight. Others are light, delicate, and airy, woven so thinly as to permit the breeze to pass through their net-like interior, and dangling daintily from the extremity of some slender twig. Others, again, are so firmly built of flattened reeds and grass blades, that they can be detached from their branches and subjected to very rough handling without losing their shape, while others are so curiously formed of stiff grass-stalks that their exterior bristles with sharp points like the skin of a hedgehog.

The true Weaver Birds all inhabit the hotter portions of the Old World, the greater number of them being found in Africa, and the remainder in various parts of India.



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SELMAR HESS, PUBLISHER, N. Y.

WEAVER BIRDS.

THE SOCIABLE WEAVER BIRD is found in several parts of Africa, and has always attracted the attention of travellers from the very remarkable edifice which it constructs. The large social nests of this bird are so conspicuous as to be notable objects at many miles' distance, and it is found that they are generally built in the branches of the giraffe thorn or "kameel-dorn," one of the acacia tribe, on which the giraffe is fond of feeding, and which is especially valuable in Southern Africa for the hardness of its wood, from which the axle-trees of wagons, handles of agricultural tools, and the strongest timbers of houses are made. This tree only grows in the most arid districts, and is therefore very suitable for the purposes of the Sociable Weaver Bird, which has a curious attachment to dry localities far from water.



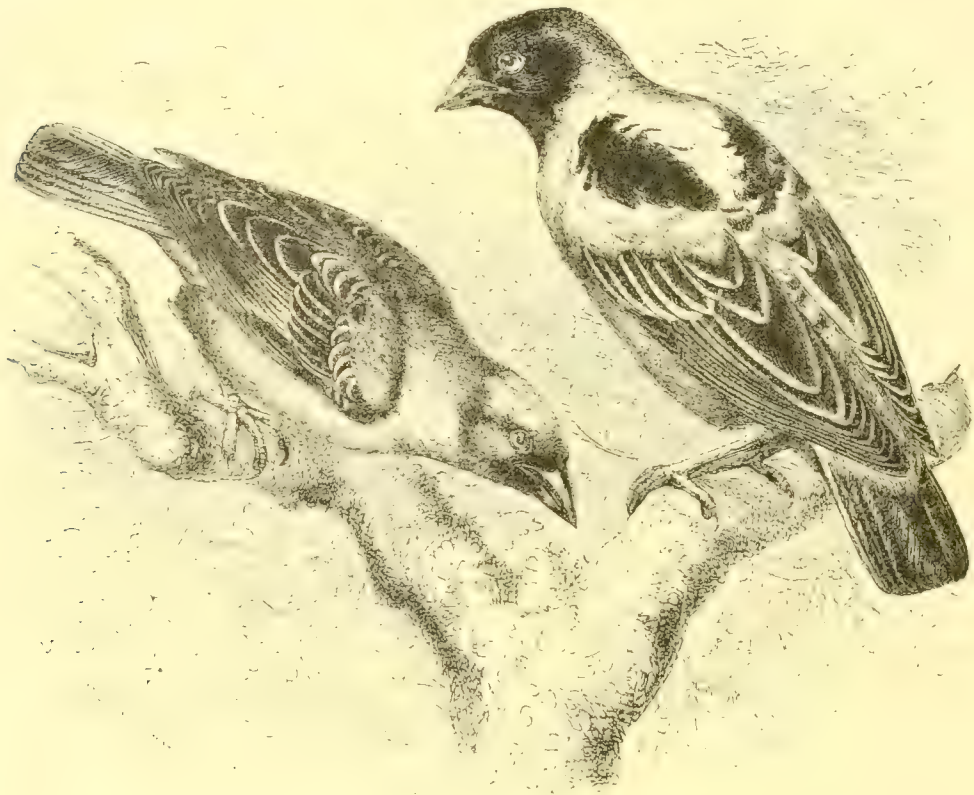
SOCIABLE WEAVER BIRD.—*Philesternus socius*.

THE MAHALI WEAVER BIRD is also an inhabitant of Africa, and has a rather large range of country, being found spread over the land as far south as the tropic of Capricorn, and probably to a still farther extent.

The nest of this bird is quite as remarkable as that of the preceding species. In general shape and size it somewhat resembles the reed-covered bottles which are often to be seen in the windows of wine importers, being shaped somewhat like a flask, or perhaps more like a common skittle, and being composed of a number of very thick grass stems laid longitudinally, and interwoven in a manner that can hardly be understood without an illustration. Contrary to the usual custom of nests, in which the materials are woven very smoothly, the nest of this bird is purposely constructed so as to present the roughest possible exterior, all the grass stems being so arranged that their broken ends protrude for several inches in a manner that reminds the observer of a military "abattis," a defence formed by prostrate trees with the ends of the branches cut off and sharpened. Probably this structure is for the same purpose as the abattis, and is meant to protect the bird from the inroad of its enemies. Several of their curious edifices may be seen in the natural museums. The interior of the nest is sufficiently soft and warm, more so, indeed, than would be supposed from the porcupine-like aspect of the exterior walls.

THE RUFOUS-NECKED WEAVER is also an inhabitant of Africa, being found in Senegal, Congo, and other hot portions of that continent.

By many persons this species is known by the name of the Capmore Weaver, a term which is evidently nothing but a corruption of Buffon's name for the same bird, namely "Le Cap-noir," or Blackcap Weaver. It is a brisk and lively bird, and possesses a cheerful though not very melodious song. It has often been brought to Europe, and is able to withstand the effects of confinement with some hardihood, living for several years in a cage. Some of these caged birds carried into captivity the habits of freedom, and as soon as the spring made its welcome appearance, they gathered together every stem of grass or blade of hay, and by interweaving these materials among the wires of their cage, did their utmost to construct a nest. The food of this bird consists mostly of beetles and other hard-shelled insects; and in order to enable it to crush their defensive armor, which is extremely strong in many of the African beetles, its peak is powerful and its edges somewhat curved. Seeds of various kinds also form part of its diet; and the undulating edge of the bill is quite as useful in shelling the seeds as in crushing the insects.



GOLD and RUFOUS-NECKED WEAVER BIRD. - *Hyphantornis galbula* and *abyssinica*.

The general color of this species is orange-yellow, variegated with black upon the upper surface. The head, chin, and part of the throat are black, and a ruddy chestnut band crosses the nape of the neck. Like many other birds, however, it changes the color of its plumage according to the time of year, and after the breeding season is over, its head assumes a tint somewhat like that of the back. It is by no means a large bird, its total length being a little more than six inches.

ONE of the best known of these curious birds is the RED-BILLED WEAVER BIRD.

This species is common in Southern Africa, and is notable for its habit of attending the herds of buffaloes in a manner somewhat similar to that of the African beef-eater, which has already been described. It does not, however, peck the deep-seated grubs from the hide, as its bill is not sufficiently strong for that purpose, but devotes itself to the easier task of

capturing and eating the numerous parasitic insects which always infest those large quadrupeds. The buffaloes are quite sensible of the benefit which is conferred upon them by their feathered allies, and move about quite unconcernedly while serving as pasture-grounds for the Weaver Birds.

Another important service is rendered to the buffalo by this Weaver Bird. It is a watchful and suspicious creature, and at the first intimation of danger it flies abruptly into the air from the buffalo's back. The beast, who, as long as the Weaver Bird remained quietly on his back, continued to feed calmly, is roused by the sudden flutter of the wings, and raises its head to ascertain the cause of the disturbance. Should it see grounds for apprehension, the alarm is given, and the whole herd dash off to a place of safety, accompanied by their watchful feathered friends.



RED-BILLED and ALECTO WEAVER BIRD.—*Tortor dinemelli* and *alecto*.

This species has also been brought to Europe, and accommodates itself so well to the climate that the Parisian bird-dealers are able to breed it like the canary, though not with quite such success. The general color of this bird is blackish-brown, variegated with white on the primaries, and reddish-brown below. The chin is black, as is a patch on the ears, and the beak is crimson, with a dash of purple on the sides. Sometimes the plumage varies slightly, and when the bird is in peculiarly fine condition and has arrived at its full maturity, a roseate hue appears on several parts of the body, and gives to it a very pleasing aspect.

AMONG the birds which are grouped together under the title of Weavers, none are more curious than those species which are popularly known by the title of Widow Birds, and more rightly by the name of Whidah Birds.

The PARADISE, or BROAD-SHAFTED WHIDAH BIRD, is the species that is most familiar in cages and menageries, as it is by no means an uncommon bird in its native land, and bears confinement better than most inhabitants of a tropical land. It is an inhabitant of Western Africa, being found throughout the whole district from Senegal to Angola; and as it is of a light and airy disposition, it gives a lively aspect to the trees among which it lives. It is perpetually in motion, flitting from bough to bough with graceful lightness, pecking here and there after a casual insect, and evidently admiring its own beautiful tail with thorough appreciation.

The name Widow Bird is altogether an erroneous title, although it is supposed by many persons to have been given to the bird on account of its dark color and long train, as well as in consequence of its evidently disconsolate state when the beautiful tail-feathers have fallen off after the breeding season. Certainly a caged Whidah Bird in such a condition exhibits the sincerest grief for his loss, and conducts himself as if laboring under the most poignant sorrow. Instead of boldly skipping among the highest forks, and flirting his long tail for the admiration of every spectator, he sits humbly on the lowest perches, or even on the floor of the cage, backs himself into a corner, and seems thoroughly ashamed of his undress. In point of fact, however, the proper name is Whidah Bird, a title that was originally given to it by the Portuguese, because the first specimens that were brought to Europe came from the kingdom of Whidah, on the eastern coast of Africa.

THERE are many species of these pretty little creatures, all being remarkable for some peculiarity in their form or coloring. One of them is the SHAFT-TAILED WHIDAH BIRD.

This exquisite bird is found along the African coasts, and is in great favor in Europe as a cage bird. Its voice is superior to that of the preceding species, although none of the Whidah Birds are remarkable for the musical power or brilliancy of their song. It is bright and sprightly in all its movements, flitting about its cage with a restless activity and fearless demeanor that endear it to its owner. From the Paradise Whidah Bird it may be distinguished not only by its coloring, but by the curious arrangement of its tail-feathers, which are very short, with the exception of the four central feathers, which are most singularly elongated, each feather presenting to the eye little but the bare shaft for the greater part of its length, and then slightly widening towards the extremities. The sides of the head and around the neck are deep, rusty red, and the back of the neck and top of the head are mottled black. The total length of the Shaft-tailed Whidah Bird is from nine to ten inches.

THE HAWFINCHES.

THE Grosbeaks or Hawfinches now claim our attention. They are all remarkable for their very large, broad, and thick beaks, a peculiarity of construction which is intended to serve them in their seed-crushing habits.

The most magnificent example of this group is the CARDINAL, or SCARLET GROSBEEK, an inhabitant of various parts of America, where it is known under the titles of Red Bird, Crested Red Bird, and Virginian Nightingale.

It is rather a large bird, measuring about eight inches in total length, and is colored in a most gorgeous fashion. The back is dusky red, and the whole of the rest of the plumage is bright, vivid scarlet, with the exception of a patch of jetty black short feathers that decorate the chin, forehead, and base of the beak. Upon the head there is a high pointed crest, which can be raised or lowered at pleasure. Even the bill is bright scarlet. The female is a smaller bird, and is not nearly so handsome as her mate. The upper parts of the body are brown-olive, and the tail, tip of the crest, and the wings are scarlet. The chin and forehead are ashen-gray, and the breast and abdomen are drab, with a dash of red. The bill is scarlet like that of the male.

The voice of the Cardinal Grosbeak is naturally fine, though the song is apt to be rather too monotonous, the bird repeating the same phrase twenty or thirty times before proceeding

The late CHARLES DARWIN writes:—"The illustrations are the best I ever saw in any work. I find it superfluous to enter here into particulars, as I already, in the 'Descent of Man,' have willingly and openly confessed how much I have profited by Mr. Brehm's book, and how highly I esteem it."

Sir JOHN LUBBOCK, Bart., D.C.L.:—"You have, I think, done good service in publishing them. They are certainly very admirable."
W. B. CARPENTER, M.D., LL.D., writes:—"I can quite endorse the favorable opinions already given by distinguished zoologists as to the high character of the illustrations generally."

Animate Creation.

WE have concluded to submit for public patronage a work with the above title, being a series of exquisite Engravings representing the ANIMAL WORLD, executed with great scientific accuracy, and accompanied by full Descriptive Text, written in popular terms, so as to delight and instruct the people. Anyone who has considered the subject must be at a loss to understand why an ILLUSTRATED NATURAL HISTORY, comprehensive and at the same time popular, has not before this been published in this country. Indeed any lover of animals who has visited the great museums and zoological gardens and has had access to books of engravings in the public libraries, could not fail to remark the wealth of material in existence devoted to this subject. Being confirmed in our conviction of the desirability of such a work, we laid under contribution the best existing authorities for the production of most perfect representations of all the more important living creatures, and among the artists whose delineations will delight the reader, we may mention Harrison Weir, Wolf, Coleman, Fr. Specht, and Mutzel. By far the majority of the engravings in these volumes are from drawings made from the *living* animals, many at the Zoological Society's Gardens in London, England.

We purpose that our patrons shall be aided and interested in their study by such an array of pictures as has never before embellished any Natural History. In numerous instances the engraving is printed in oil-colors, and this portion of the illustrations has been taken charge of by Messrs. L. Prang & Co., of Boston, who we believe rank foremost for high artistic results in this department of printing. These Oleographs were copied under the superintendence of Mr. Prang from the renowned "Tafeln" of "Brehm's Thierleben," so that they may be declared perfectly reliable.

We sought competent advice from various sources as to the most suitable text that should accompany this panorama of handsome Engravings. It was found impossible to embody all the present ideas of naturalists in a single work like this on account of the rapid advances and constant changes in their knowledge of, and habits of thought respecting, the Animal World. And it seemed to us correct that the true object of Zoology is not to arrange, to number, and to ticket animals in a formal inventory, but to inquire into their life-nature, and not simply to investigate the lifeless organism.

What do we know of "Man" from the dissecting-room? Is it not Man, the warrior, the statesman, the poet, etc., that we are interested in? With all veneration which attaches itself to those who are the accredited possessors of abstruse learning, their inordinate use of phraseology detracts too much, we fear, from the fascination that the study of the Animal World would otherwise yield, and as we are not content to have our work restricted to a favored few, we thought the task placed in our hands to be to keep the work free from a repellant vocabulary of conventional technicalities. Our endeavor has been to find an author whose work would be noted for its fund of anecdote and vitality rather than for merely anatomical and scientific presentation, and we arrived at the conclusion that we could not do better than avail ourselves of the Rev. J. G. Wood's comprehensive work—a work most popularly approved by speakers of the English language. It would be superfluous to say one word concerning the standard character of his book, from the pages of which old and young at the other side of the Atlantic have obtained so much instruction and rational amusement. Avoiding the lengthened dissertations and minute classifications of specialists, he presents to his readers in popular terms a complete treatise on the Animal Kingdom of all climes and countries. The one objection that could be urged against it was, that animal life in America might be treated more fully and American forms given more consideration. In order to obviate this drawback and to do full justice to the creatures of our own country, we secured the aid of Dr. J. B. HOLDER, of the American Museum of Natural History in New York, an undoubted American authority, who has adapted Wood's work to American wants and given prominence to American forms of Animal life.

The splendid work on Rodentia, by Allen, Coues, and others, will be fully consulted. The valuable work on North American Birds, by Baird, Brewer, and Ridgway, will be the guide in the treatment of birds. The late arrangement of the classification and nomenclature of North American Birds, by Mr. Ridgway, and the Committee on that subject of the Ornithologists' Union, will be utilized in full. The arrangement of Mammals will be after the latest classification by Professor Flower, of the Zoological Society of London. So that this will be the first popular Natural History worthy of the name that has made its appearance here, which gives due and full recognition to the animate world surrounding us.

Terms of Publication.

The extent of the work will be 68 parts of 28 pages, at the price of 25 cents each. The entire publication will contain 31 Oleographs and 68 Full Page Engravings on Wood, besides many hundreds of exquisite Illustrations interspersed through the text. The parts will be issued every two weeks, and are payable only as delivered. No subscriber's name will be received for less than the entire work, and anyone removing, or not regularly supplied, will please address the Publisher by mail.

N. E.

SELMAR HESS, Publisher, New York.

to another. Still, its musical powers are sufficiently marked to earn for the bird the title of Virginian Nightingale, and it is a curious fact that the female often sings nearly as well as her mate.

This bird seems to be of a very tender-hearted disposition, and given to the adoption of other birds when young and helpless. Wilson mentions that he placed a young cow bird in



CARDINAL GROSBEAK and HAWFINCH.—*Cardinalis virginianus* and *Coccothraustes vulgaris*.

the same cage with a Cardinal Grosbeak, which the latter immediately adopted, and reared the poor, helpless little creature that had appealed so suddenly to its compassionate feelings. Mr. Webber, moreover, in his account of the Birds of America, gives an anecdote of a Scarlet Grosbeak belonging to an old woman in Washington City, which used to make a regular business of rearing the young of other birds which were placed under his charge, and thereby earning a considerable sum of money in the course of a season. She had often been offered a high price for her bird, but always refused to sell him, impelled either by hope of gain or by love of the bird; we may hope that the latter feeling predominated.

In its native land the Cardinal Grosbeak is most common in the Southern States, and in some localities is migratory, while in others it remains throughout the year. "In the Northern States," says Wilson, "they are migratory, but in the lower parts of Pennsylvania they reside during the whole year, frequenting the borders of creeks and rivulets, in sheltered hollows covered with holly, laurel, and other evergreens. They love also to reside in the vicinity of fields of Indian corn, a grain that contributes their chief and favorite food. The seeds of apples, cherries, and of many other sorts of fruit are also eaten by them, and they are accused of destroying bees."

Many of these splendid birds are now brought to Europe as inhabitants of the aviary, and are found to be hardy birds, able to withstand the inclemency even of the English climate. It is a remarkable fact, that in confinement the Cardinal Grosbeak is very apt to change its color, the bright scarlet and vermilion fading to a dull whitish red; probably the effect of insufficient or improper food. When carefully tended, it is a really healthy and long-lived bird, having been known to survive for a space of twenty years in a cage.

The nest of the Cardinal Grosbeak is generally placed in a holly, cedar, laurel, or other thick evergreen, and is made of slender sticks, weeds, strips of bark, and fine grass-stems. The eggs are generally five in number, and their color is dull gray-white, covered with numerous blotches of brownish olive. There are generally two broods in the season.

The Cardinal Grosbeak is the most familiar example of a group of birds whose plumage is quite suggestive of the tropics. It is called in the Southern States Red-bird, and as such is in great request as a singing bird. The male is very rich in color, much of the plumage being in singular contrast to that of most of our North American birds. "To the name, Virginian Nightingale," says Dr. Latham, "they are well entitled, for the clearness and variety of their notes, which, both in a wild and domestic state, are very various and musical. Many of them resemble the high notes of a fife and are nearly as loud. In the Northern States they are migratory, but in the lower parts of Pennsylvania they are resident the whole year."

In confinement these birds are known to have lived twenty-one years. A specimen is in the old Peale's Museum, in Philadelphia; such a fact is recorded with the stuffed specimen. One peculiarity is that the female often sings as well as the male.

A variety of this bird is called Saint Lucas Cardinal. There is also another species named Texan Cardinal.

THE ROSE-BREASTED GROSBEAK (*Zamelodia ludoviciana*) is one of the most beautiful of American birds. It is seen in New England during the summer and fall. The male has most beautiful markings of pink and white upon his breast; and being of considerable size, as compared with most of our songsters, is notably handsome and conspicuous.

THE BLACK-HEADED GROSBEAK is another species of about the same size, and though very handsome in coloration, is much less brilliant than the preceding. The Blue Grosbeak is smaller, and is of a rich purplish blue. It inhabits the Southern States.

THE PINE GROSBEAK (*Pinicola enucleator*) is a large, stout bird, of plain olive and red plumage, and is one of the most attractive birds that visit the colder regions of America. They breed about Hudson's Bay, and visit New England during the more severe winters. Its notes are regarded as sweet and mellow.

Another species is the EVENING GROSBEAK, inhabiting the Southern States.

EUROPE possesses a good example of this group in the well-known HAWFINCH, or GROSBEAK.

This bird was once thought to be exceedingly scarce, but is now known to be anything but uncommon, although it is rarely seen, owing to its very shy and retiring habits, which lead it to eschew the vicinity of man and to bury itself in the recesses of forests. So extremely wary is the Hawfinch that to approach within gunshot is a very difficult matter, and can seldom be accomplished without the assistance of a decoy-bird, or by imitating the call-note, which bears some resemblance to that of a robin. It feeds chiefly on the various wild berries, not rejecting even the hard stones of plums and the laurel berries. In the spring, it is apt to make inroads in the early dawn upon the cultivated grounds, and has an especial liking for peas, among which it often works dire havoc.

It is a gregarious bird, associating in flocks varying in number from ten to two hundred, and always being greatest after the breeding season. According to Mr. Doubleday, it is not migratory. Forests with berries of various kinds are its chief strongholds. When in the

forest, the bird generally perches upon the extreme top of some lofty tree, from whence it keeps so complete a watch that hardly a weasel could steal upon it without being perceived and its presence reported by an alarm note, which is perfectly understood not only by other Grosbeaks, but by all the feathered and some of the furred tribes.

The nest of the Hawfinch is not remarkable either for elegance or peculiarity of form. It is very simply built of slender twigs, bits of dried creepers, gray lichens, roots and hair, and is so carelessly put together that it can hardly be moved entire. The eggs are from four to six in number, and their color is very pale olive-green, streaked with gray and spotted with black dots. The birds pair in the middle of April, begin to build their nests about the end of that month, and the young are hatched about the third week in May.

The color of the adult male Grosbeak is briefly as follows: The head and nape of the neck are fawn color, deepening towards the shoulders and fading into gray on the other portions of the neck, and the chin and throat are velvety black. The upper part of the body is chestnut-brown, and the wing-coverts are variegated with white, black, and fawn. The primary feathers of the wing are deep blue-black, white on the inner webs. The upper tail-coverts are fawn, and the tail itself is black and white, with the exception of the two central feathers, which are grayish-brown, tipped with white. The sides of the neck, the breast, abdomen, and whole of the under parts are brown of a lighter and paler hue than that of the back, and the under tail-coverts are white. The female is similarly colored, but the hues are much duller than in her mate. The total length of the bird is seven inches.

On examining the wings of this bird, the observer will be struck with the curious shape of the fifth, sixth, seventh, eighth, ninth, and tenth primary feathers, which are not pointed, but are larger at the ends, rounded and hooked in a manner which is well compared by Yarrell to the head of an ancient battle-axe. Perhaps the Jedburgh axe is more like the shape of these curious feathers.

ALTHOUGH not possessed of the glowing scarlet hue which decorates the cardinal Grosbeak, the BLACK AND YELLOW GROSBEAK is quite as remarkable and scarcely a less handsome bird.

Its ordinary habitation is in the northern parts of India, but it is a bird of strong wing, and often wanders as far as Central India in search of food. Like others of the same group, it mostly feeds on berries and various stone-fruits, crushing even the hard-shelled seeds and stones in its thick and powerful beak. Even at a distance, this bird is very conspicuous on account of the bold and dashing manner in which the whole of the plumage is variegated with black, white, and yellow, all these colors being of the purest and brightest quality.

The whole of the upper surface and the breast are deep jetty black, with a slight silken gloss when the bird is in good condition. A few snowy-white spots appear on the basal portions of the four central primary feathers of the wing, and several of the primaries, together with the whole of the secondaries, are edged with the same hue, thus presenting a very strong contrast to the jetty feathers of the back. The lower part of the breast and the abdomen are bright golden yellow, so that the bird is colored only with these three decided hues, without any gradation through intermediate hues, as is generally the case in birds of bright plumage. The female is easily distinguished from her mate, as the upper surface is dusky black, largely mottled with yellow upon the head, neck, and back. The breast and abdomen are grayish yellow, profusely covered with black spots resembling the "tears" in heraldry. The quality of the hue is rather variable, as in some specimens the black is of the deepest, and the yellow of the richest, glossiest gold, whereas in some individuals—probably the young male just entering his perfect plumage, or the old male getting feeble with age—the black has a dirty look, and the yellow is nearly white. In size this bird is about equal to the cardinal Grosbeak.

THE Tanagrine birds are well represented by the SCARLET TANAGER of America.

It is a very handsome bird, decorated with lively scarlet and deep black, and is possessed of a tolerable, though not especially musical voice. This is one of the migratory species, arriving in the northern portions of the United States about the end of April, and remaining

until the breeding season is over. The nest is made of rather rough materials, such as flax-stalks and dry grass, and is so loosely put together that the light is perceptible through the interstices of the walls. The number of eggs is generally three, and their color is dullish blue, variegated with brown and purplish spots. While engaged in the business of incubation, both birds are extremely terrified at the presence of any strange object, and if a human being approaches the nest, the male flies to a little distance and keeps cautiously aloof, peering through the boughs at the foe, and constantly fearful of being seen. The female also leaves the nest, but continues to fly restlessly about her home, hovering over the eggs or young in great distress. When, however, the young are hatched, the male parent takes his full share in attending upon them, and cares nothing for being seen.

The attachment of the male bird to his young seems to be very strong, as is shown by the following account, extracted from Wilson :—

“Passing through an orchard, and seeing one of these young birds that had but lately left the nest, I carried it with me about half a mile to show it to my friend, Mr. William Bartram, and having procured a cage, hung it up on one of the large pine-trees in the Botanic Garden, within a few feet of the nest of an orchard oriole, which also contained young, hopeful that the charity and kindness of the orioles would induce them to supply the cravings of the stranger. But charity with them, as with too many of the human race, began and ended at home.

“The poor orphan was altogether neglected, notwithstanding its plaintive cries, and as it refused to be fed by me, I was about to return it to the place where I found it, when towards the afternoon a Scarlet Tanager, no doubt its own parent, was seen fluttering round the cage, endeavoring to get in. Finding this impracticable, he flew off and soon returned with food in his bill, and continued to feed it till after sunset, taking up his lodgings on the higher branches of the same tree. In the morning, almost as soon as day broke, he was again seen most actively engaged in the same affectionate manner, and, notwithstanding the insolence of the orioles, continued his benevolent offices the whole day, roosting at night as before.

“On the third or fourth day he appeared extremely solicitous for the liberation of his charge, using every expression of distressful anxiety, and every call and invitation that nature had put in his power for him to come out. This was too much for the feelings of my venerable friend; he procured a ladder, and mounting to the spot where the bird was suspended, opened the cage, took out the prisoner, and restored him to liberty and to his parent, who, with notes of great exultation, accompanied his flight to the woods.”

The tail is forked, and very slightly tipped with white. This plumage is, however, only donned during the breeding season, for in the autumnal moult a number of greenish yellow feathers make their appearance, giving the bird a uniformly dappled or mottled aspect. The female is a comparatively soberly clad bird, being green above and yellow beneath, with wings and tail brownish black, edged with green. The total length of the Scarlet Tanager is between six and seven inches.

They may readily be distinguished from the other Fringillidæ by the notched upper mandible, and by the triangular base and arched ridge of the beak. Most of them are possessed of musical powers; one species, the ORGANIST TANAGER (*Euphonia musica*), deriving its popular and scientific title from its rich full tones. The colors of the Tanagers are generally brilliant, scarlet, black, and orange being the ordinary hues with which their plumage is bedecked.

The Scarlet Tanager is one of five species inhabiting the United States. The family of Tanagers is especially American. The larger number of these species are found in South America, where they abound. Many of them excel, in beauty and richness of plumage, any known bird. Wilson says of our visitor, the Scarlet Tanager: “He is dressed in the richest scarlet, set off with the most jetty black. Among all the birds that inhabit our woods, there is none that strikes the eye of a stranger, or even a native, with such brilliancy as this. Seen among the green leaves, with the light falling strongly on his plumage, he is a superb creature.” The Louisiana Tanager is native to the Southwestern United States. A Western species is known; and one, called the HEPATIC TANAGER, inhabiting Mexico.

THE SUMMER RED BIRD (*Pyrranga astiva*). This is a favorite cage bird in the Southern States. The male is wholly of a rich vermilion color, most brilliant on the lower parts, except the inner vanes and tips of the wings. The female is of a sober brown color, or olive-brown. It remains in the north until August, when it retires southward, having raised its young, one brood. The note is a strong sonorous whistle, resembling a loose trill, or shake on the notes of a fife, frequently repeated; that of the female is rather a kind of chattering. She is, however, rarely seen, and is usually mute, and scarcely to be distinguished from the color of the foliage at a distance; while the loquacity and brilliant red of the male make him very conspicuous. This bird is very abundant in the Gulf States. It is a rare summer visitor as far north as New England. Its food consists of insects, and berries are eaten in the season.

THE true Finches are known by their rather short and conical beak, their long and pointed wings, and the absence of nostrils in the beak. Europe possesses many examples of these birds, several of which are celebrated for their beauty of plumage and powers of song.

AMONG the most beautiful of these birds, the GOULDIAN FINCH holds a high place, its plumage being decorated with the softest and most harmonious hues, the feathers glowing with delicately opalescent shades of lilac, green, and golden yellow.

This exquisite little bird is a native of New South Wales, and although not very scarce in the district which it frequents, is yet decidedly local in its habits. It is seldom seen in the open country, preferring to haunt the thicket and edges of forests, where it may be seen hopping easily among the branches, in little bands of from four to seven or eight in number. The voice of this finch is not remarkable for force or beauty, being little more than a querulous kind of twitter, which it utters mournfully when disturbed, at the same time flying to the summit of the nearest tree, and there sitting until the cause of alarm is removed.

The color of this bird is as follows: The head and throat are deep velvet-black, the back and wings are soft yellowish-green, and a stripe of bright verditer-green runs from behind the eye down the sides of the neck, until it is merged in the yellow-green of the back. Across the breast runs a broad band of purple, yellow, or lilac, and the whole of the under surface is golden-yellow, with a kind of waxen gloss. The bill is scarlet at the tip, and white at the base. These tints belong only to the adult bird, the young being soberly clad in gray, buff, and olive.

ON the colored illustration of the Finches, one represents the GOLDFINCH. It is one of the most familiar and prettiest songsters of Europe.

The CHAFFINCH, another representative of the same species, is one of the commonest field birds, being spread over the whole of Europe in very great numbers, and frequenting hedges, fields, and gardens with equal impartiality. It is a most gay and lively little bird, and whether singly, or assembled in large flocks, it always adds much life to the landscape, and delights the eye of every one who is not a farmer or a gardener, both of which personages wage deadly war against the bright little bird. For the Chaffinch is apt at times to be a sad thief, and has so strong a liking for young and tender vegetables, that it pounces upon the green blades of corn, turnips, radishes, and similar plants, as soon as they push their way through the soil, and in a few hours destroys the whole of the seedlings. In one instance, a few Chaffinches settled upon a piece of ground about one hundred and twenty yards square, that had been planted with turnips, and before the day had closed, they had pulled up every young shoot and eaten a considerable amount of them.

As, however, is the case of the rook, the chief food of the Chaffinch consists of insects which would be most noxious to the agriculturist, and in all probability the harm which they do in eating young plants and buds is more than counterbalanced by the benefit which they confer in destroying myriads of dangerous insects.

The specific title of *Cælebs*, which is given to the Chaffinch, signifies a bachelor, and refers to the annual separation of the sexes, which takes place in the autumn, the females departing to some other region, and the males congregating in vast multitudes, consoling themselves as they best can by the pleasures of society for the absence of the gentler portion of the community. Very large flocks of these birds appear towards the end of autumn, and seem at first to be wholly composed of females. It is, however, more than probable that they consist of the females together with their young families of both sexes, and that the immature males have not as yet assumed their perfect plumage. The flocks are generally seen about hedge-rows and stubble-fields; and if the weather should be very severe, they adjourn to the vicinity of human habitations, haunting the gardens and farm-yards, and often rivalling the sparrows in their boldness of demeanor.

The note of this bird is a merry kind of whistle, and the call-note is very musical and ringing, somewhat resembling the word "pinck," which has therefore been often applied to the bird as its provincial name.

The nest of the Chaffinch is one of the prettiest and neatest. It is deeply cup-shaped, and the materials of which it is composed are moss, wool, hair, and lichens, the latter substances being always stuck profusely over the surface, so as to give it a resemblance to the bough on which it has been built. The nest is almost invariably made in the upright fork of a branch, just at its junction with the main stem or bough from which it sprang, and is so beautifully worked into harmony with the bark of the particular tree on which it is placed, that it escapes the eye of any but a practised observer. Great pains are taken by the female in making her nest, and the structure occupies her about three weeks. The eggs are from four to five in number, and their color is pale brownish buff, decorated with several largish spots and streaks of very dark brown.

The color of this pretty bird is as follows: At the base of the beak the feathers are jetty black, and the same hue, but with a slight dash of brown, is found on the wings and the greater wing-coverts. The top of the head and back of the neck are slaty-gray, the back is chestnut, and the sides of the head, the chin, throat, and breast are bright ruddy chestnut, fading into a colder tint upon the abdomen. The larger wing-coverts are tipped with white, the lesser coverts are entirely of the same hue, and the tertials are edged with yellowish white. The tail has the two central feathers grayish black, the next three pairs black, and the remaining feathers variegated with black and white. The total length of the bird is six inches. The female is colored something like the male, but not so brilliantly.

OF all the Finches, none is so truly handsome as the GOLDFINCH, a bird whose bright yellow orange hues suffer but little even when it is placed in close proximity to the more gaudy Finches of tropical climates. Like the chaffinch, it is spread over the whole of Europe, and may be seen in great numbers feeding on the white thistledown. There are few prettier sights than to watch a cloud of Goldfinches fluttering along a hedge, chasing the thistledown as it is whirled away by the breeze, and uttering all the while their sweet merry notes.

The birds are not very shy, and by lying quietly in the hedge the observer may watch them as they come flying along, ever and anon perching upon the thistle tops, dragging out a beakful of down, and biting off the seeds with infinite satisfaction. Sometimes a Goldfinch will make a dart at a thistle or burdock, and without perching snatch several of the seeds from their bed, and then alighting on the stem, will run up it as nimbly as a squirrel, and peck away at the seeds, quite careless as to the attitude it may be forced to adopt. These beautiful little birds are most useful to the farmer, for they not only devour multitudes of insects during the spring months, but in the autumn they turn their attention to the thistle, burdock, groundsel, plantain, and other weeds, and work more effectual destruction than the farmer could hope to attain with all his laborers. Several Goldfinches may often be seen at one time on the stem and top of a single thistle, and two or three are frequently busily engaged on the same plant of groundsel.

THE AMERICAN GOLDFINCH (*Astragalinus tristis*) is a pretty and familiar little bird. In



SELMAR HESS, PUBLISHER, N. Y.

GROUP OF FINCHES

New England it is called Yellow-bird. It is a rich lemon-yellow, with wings of black. The great resemblance of this bird to the canary induces people to keep them. They often pair with the canary, as they are easily domesticated. The song of the Yellow-bird resembles that of the Goldfinch of Europe.

Several other species of Goldfinch are found in the Southern and Western States.

THE SISKIN, or ABERDEVINE, is one of the European birds which performs an annual migration either partial or complete, a question about which there has been some controversy, and one which may fully receive a solution from the supposition that some birds remain in the countries of that part of the world throughout the year, retiring no farther to the north than Scotland, while others pass to Norway and Sweden for the purpose of nidification, and do not return to a warmer climate until the autumn.

They are lively little birds, assembling in small flocks of eight or ten in number, and haunting the edges of brooks and streams for the purpose of seeking the seeds of the elder and other trees, on which they chiefly feed. Along the banks they are quick and active, fluttering from one bough to another, and clinging in every imaginable attitude, with a strength of limb and briskness of gesture much resembling the movements of the titmice. While thus engaged, they constantly utter their sweet and gentle call note, which is so soft that bird-dealers are in the habit of pairing the Siskin with the canary, in order to obtain a song-bird whose voice is not so ear-piercing as that of the pure canary.

The coloring of this bird is remarkable for the very peculiar green with which most of its plumage is tinged, and which is spread over the whole of its back and the upper portions of its body. The centre of each feather of its back is dark olive-green.

THE GREENFINCH is one of the commonest birds, being a resident in European countries throughout the year, and not even requiring a partial migration.

It is mostly found in hedges, bushes, and copses, and as it is a bold and familiar bird, is in the habit of frequenting the habitations of men, and even building its nest within close proximity to houses or gardens. During the mild weather, the Greenfinch remains in the open country, but in the severe winter months it crowds to the farm-houses, and boldly disputes with the sparrows the chance grains of food that it may find. When young, the bird is fed almost wholly upon caterpillars and various insects, and not until it has attained its full growth does it try upon the hard seeds the large bill which has obtained for it the title of Green Grosbeak.

The voice of the Greenfinch is very ordinary, being possessed neither of strength nor melody, so that the bird is in very little demand as an inhabitant of the aviary.

The nest of this bird is generally built rather later than is usual with the Finches, and is seldom completed until May has fairly set in. Its substance is not unlike that of the chaffinch, being composed of roots, wool, moss, and feathers. It is not, however, so neatly made, nor so finely woven together, as the nest of that bird. The eggs are from three to five in number, and the color is bluish-white covered at the larger end with spots of brown and gray.

In the adult male bird, the head, neck, and all the upper parts of the body are yellow with a green wash, and the wings are partly edged with bright yellow. The primary feathers of the wings are gray-black, edged for a considerable portion of their length with brilliant yellow. The greater wing-coverts, together with the tertiaries, are gray; the chin, throat, breast, and under parts of the body are yellow, falling into gray on the flanks. With the exception of the two short middle feathers, which are gray-brown throughout, the tail-feathers are yellow for the first half of their length, and gray-brown for the remainder. The female is of much more sober colors, being greenish brown on the back and under surface, and the yellow of the wings being very dull. The total length of the bird is about six inches, the female being little less than her mate.

THE common LINNET is sometimes called the BROWN LINNET, in contradistinction to the preceding species, or the GREATER REDFINCH, in allusion to the vermilion-tipped feathers the crown.

Few birds are better known than the Linnet, although the change of plumage to which it is subject in the different seasons of the year has caused the same bird, while in its winter plumage, to be considered as distinct from the same individual in its summer dress. Except during the breeding season, the Linnets associate in flocks, flying from spot to spot, and feeding upon the seeds of various plants, evidently preferring those of the thistle, dandelion, and various cruciferous plants. It is a very lively bird, and is possessed of a sweet and agreeable, though not very powerful song.

THE PURPLE FINCH (*Carpodacus purpureus*). This is a winter bird of passage, coming to us in the Northern States in September and October. Great numbers remain during the winter as far south as Pennsylvania, feeding on the seeds of buttonwood, cedar, etc.

In severe seasons they are found farther south. They return north to breed in May. The Purple Finch is a hardy, vigorous bird, and very quarrelsome if placed with other birds as pets.

A Californian variety is known, and three other species of the genus *Carpodacus*.

THE CANARY, THE SPARROWS, AND THE BUNTINGS.

THE SNOW BIRD, which is not to be confounded with the Snow Bunting, hereafter to be described, is an inhabitant of America, and has a very large range of country.

According to Wilson's lively description of this bird, "at first they are most generally seen on the borders of woods among the falling and decayed leaves, in loose flocks of thirty or forty together, always taking to the trees when disturbed. As the weather sets in colder, they venture nearer the farm-houses and villages, and on the approach of what is usually called 'falling weather,' assemble in larger flocks, and seem doubly diligent in searching for food. This increased activity is generally a sure prognostic of a storm.

"When deep snow covers the ground, they become almost half domesticated. They collect about the barns, stables, and other out-houses, spread over the yard, and even round the steps of the door; not only in the country and villages, but in the heart of our large cities; crowding around the threshold early in the morning, gleaning up the crumbs, and appearing very lively and familiar. They also have recourse at this severe season, when the face of the earth is shut up from them, to the seeds of many kinds of weeds that still rise above the snow, in corners of fields, and low sheltered situations, along the borders of creeks and fences, where they unite with several species of sparrow. They are at this time easily caught with almost any kind of trap, are generally fat, and it is said are excellent eating."

At the very beginning of summer, as soon as the weather begins to be warm, the Snow Bird retires from its winter quarters, and migrates to the higher regions of the earth, for the purpose of breeding. Even in the business of rearing their young, the Snow Birds are very gregarious, placing the nest upon the ground, or on the grass, in close proximity to each other.

The head, neck, and upper parts of the body, and the wings, are very deep, slaty-brown, either color predominating according to the age of the individual and the season of the year. The lower parts of the breast and the abdomen are pure snowy-white, and the two exterior tail-feathers are of the same hue, the secondaries being dark slate. The female has but little of the slaty-blue, and is almost wholly brown. The total length of this species is about six inches.

THE BLACK SNOW BIRD (*Junco hyemalis*—formerly *fringilla*) is a cheery, pretty little winter visitor from the far north, and is by far the most numerous and widely disseminated of all the feathered tribes that come from that direction. Their migrations extend from the Arctic Circle to Mexico, and from the Atlantic Ocean to Louisiana. As the winter lengthens, this bird, in flocks, approaches the farm-houses, and even the dwellings in towns. They are lively and familiar little creatures.



EARLY BREAKFAST.

Several species are known, inhabiting the southern country, as the Mexican and the Gaudeloupe Snow Birds.

ALLIED to the preceding are numerous species of Towhees.

The CHEWINK, or TOWHEE (*Pipilo erythrophthalmus*) is the more familiar species in New England and the Northern States. It is quickly recognized, if present, by its curious habit of scratching among the dried leaves of the forest.

Four other species are known. One, the Oregon Towhee, inhabits the far west, on the Pacific slope. Another is the Gaudeloupe Towhee, inhabiting the extreme southern limits of North America. Others and varieties are found in the cañons of Colorado, and in California. The Towhees are especially interesting birds; are shapely, and though the plumage is sober in color, it is nevertheless pleasing.

The cheery, busy Northern Towhee, as he is seen and heard scratching among the leaves of the forest during the fall months, is always pleasing.

WE must now pass on to another species, which everywhere has become so far naturalized, that to many eyes it is even more familiar than the sparrow.

THE pretty little CANARY BIRD, so prized as a domestic pet, derives its name from the locality whence it was originally brought.

Rather more than three hundred years ago, a ship was partly laden with little green birds captured in the Canary Islands, and having been wrecked near Elba, the birds made their escape, flew to the island, and there settled themselves. Numbers of them were caught by the inhabitants, and on account of their sprightly vivacity and the brilliancy of their voice they soon became great favorites, and rapidly spread over Europe.

The original color of the Canary is not the bright yellow with which its feathers are generally tinted, but a kind of dappled olive-green, black, and yellow, either color predominating



WILD CANARY.—*Serinus canarius*.

according to circumstances. By careful management, however, the bird-fanciers are able to procure Canaries of every tint between the three colors, and have instituted a set of rules by which the quality and arrangement of the coloring is reduced to a regular system. Still, the original dappled green is always apt to make its appearance; and even when two light-colored birds are mated, a green young one is pretty sure to be found in the nest. For my own part, I care little for the artificial varieties produced by the fanciers according to their arbitrary

rules, always subject to variation ; and to my mind, an intelligent bird and a good songster is not one whit the less attractive because the colors of its plumage are not arranged precisely according to the fanciers' rules.

THE noisy, familiar, impatient SPARROW is one of those creatures that has attached itself to man, and follows him wherever he goes.

Nothing seems to daunt this bold little bird, which is equally at home in the fresh air of the country farm, in the midst of a crowded city, or among the strange sights and sounds of a



THE COMMON ENGLISH SPARROW and THE TREE SPARROW.—*Passer domesticus* and *montanus*.

large railway station ; treating with equal indifference the slow-paced wagon horses, as they deliberately drag their load over the country roads, the noisy cabs and omnibuses as they rattle over the city pavements, and the snorting, puffing engines, as they dash through the stations with a velocity that makes the earth tremble beneath their terrible rush.

THE TREE SPARROW may readily be distinguished from the preceding species by the chestnut head, the triangular patch of black on the cheeks, and the browner white of the lower surface of the body.

This bird is not nearly so common as the house Sparrow, and generally places its nest in trees in preference to thatch and walls. Sometimes, however, it follows the common Sparrow in the building of its domicile, and has been known to place its nest in the deserted home of a crow or rook, making a dome like that of the common Sparrow when building in trees. Occa-

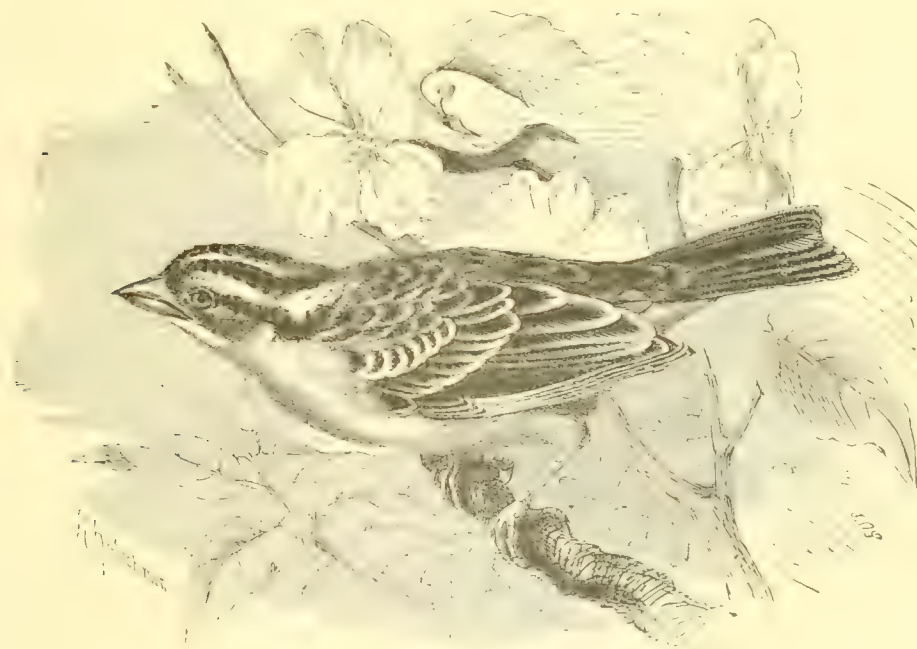


MARAUDING SPARROWS.

sionally it has been observed to build its nest in the hollow of a tree, and to take possession of a hole that had formerly been occupied by the woodpecker. The eggs are different in hue from those of the common Sparrow, being dullish white, covered entirely with very light dots of ashen-brown. Their number is generally from four to six.

Lately was published a short communication from a gentleman residing at Penzance. "A Norwegian brig put into Penzance a few days since, and among other incidents of the voyage between Norway and England, the master of the vessel mentioned that midway between the two countries, thousands of small Sparrows paused and alighted on the ship, covering the deck and rigging. The birds were exhausted and soon died, and some half-dozen were kept from mere curiosity to show to friends. These were brought for my inspection, a day or two since, by a person who begged them of the captain to show me. The six specimens were all *Passer montanus*, the Tree Sparrow, the Mountain Sparrow of Bewick."

Besides the markings which have already been mentioned, the Tree Sparrow has a streak of white, marking the boundary between the chestnut of the neck and the red hue of the back and wings. The lower wing-coverts are not so broadly tipped with white as in the common species, but are of a deep black, with a very narrow edging of white. Below the eye and over the ear-coverts, there is a narrow black streak, and the breast and abdomen are white, with a brown tinge, deepening on the flanks. In size the Tree Sparrow is not so large as the common species, by nearly half an inch of length.



WHITE-THROATED SPARROW.—*Zonotrichia albicollis*.

THE WHITE-THROATED SPARROW is an inhabitant of America, and is one of the partial migrators, passing to and from the northern and southern portions of that continent, according to the season of the year.

Of this bird Wilson speaks as follows: "This is the largest as well as the handsomest of all our Sparrows. It resides in most of the States south of New England. From Connecticut to Savannah I found these birds numerous, particularly in the neighborhood of the Roanoke river and among the rice plantations. In summer they retire to the higher inland parts of the country, and also farther south, to breed. According to Pennant, they are also found at that season in Newfoundland. During their residence here in winter they collect together in flocks, always preferring the borders of swampy thickets, creeks, and mill-ponds, skirted with alder bushes and long rank weeds, the seeds of which form their principal food.

“Early in the spring, a little before they leave us, they have a few remarkably sweet and clear notes, generally in the morning a little after sunrise. About the twentieth of April they disappear, and we see no more of them until the beginning or second week of October, when they again return, part to pass the winter with us, and part on their return farther south.”

The coloring of this bird is very graceful. The upper surface of the body and the lower wing-coverts are rather agreeably mottled with black, ashen-brown, bay, and clear ash, the breast is ash, and the chin and under portions of the body are pure white. The head is striped with black and white, and another white streak which passes over the eye warms into orange-yellow between the eye and the nostril. The female is easily distinguished by the lighter breast, the drab wash upon the white, and the smaller size of the orange line on the head. The legs are flesh-colored, and the bill has a bluish tinge. The total length of the White-throated Sparrow is about six and a half inches.

THE SHARP-TAILED FINCH derives its popular and appropriate title from the peculiar shape of its tail.

It is an interesting little bird, remarkably swift of foot, and a very excellent climber of reeds and rushes, two accomplishments which are very seldom combined in the same species. The sea-shore is the favorite haunt of this bird, which seems to depend wholly upon the waves for its subsistence. While feeding, it courses along the edge of the water with wonderful celerity, pecking here and there at the little fish and crustaceans which have been flung ashore by the water, and would make good their escape were not they interrupted by the ready beak of their destroyer. As it trips over the sands it has all the appearance of the sandpipers and other shore-living birds, although its legs are shorter and its dimensions smaller.

The low coral-covered islands that edge the Atlantic coast of America are the favored resorts of the Sharp-tailed Finch, which seldom quits these places of safety, unless driven by continuous and wild easterly gales, which drive the sea over the islands and render them untenable for the time. The bird then flies over to the main land, but still remains close to the sea, preferring to roost on the ground and run about after dark. On examining the stomach of several of these birds, Wilson found that they contained fragments of shrimps, very small mollusks, and broken limbs of small crabs, no other substances ever being found in their interior. Owing to this diet, the flesh of this species is not at all fitted for the table, being rank and fishy.

The crown of the head is olive-brown divided laterally with a streak of slaty-blue or light ash. The head and sides of the face are marked with several streaks of white, one of which becomes orange-yellow near the beak. The whole of the upper parts are brownish olive with a perceptible blue wash, the chin and abdomen are pure white, the breast is ashen-gray streaked liberally with buff, and the under tail-coverts are buff streaked with black. All the wing-coverts are tipped with narrow white bands, and the wings are rather richly variegated with yellow. The total length of this bird is rather more than six inches.

THE Buntings are known by their sharp conical bills, with the edges of the upper mandible rounded and slightly turned inwards, and the knob on the palate. They are common in most parts of the world, are gregarious during the winter months, and in some cases become so fat upon the autumn grain that they are considered great dainties.

ONE of the most familiar of all these birds is the YELLOW BUNTING, OR YELLOW AMMER, as it is often called.

This lively bird frequents our fields and hedge-rows, and is remarkable for a curious mixture of wariness and curiosity, the latter feeling impelling it to observe a traveller with great attention, and the former to keep out of reach of any missile. So, in walking along a country lane, the passenger is often preceded by one or more of these birds, which always keeps about seventy or eighty yards in advance, and flutters in and out of the hedges or trees with a peculiar and unmistakable flirt of the wings and tail. It possesses but little song, and is consequently of no value as a cage-bird, remaining scathless while many a poor goldfinch, lark, or



GROUP OF BUNTINGS.

thrush falls a victim to the bird-catcher, and passes the remainder of its life cooped in the narrow precincts of a cage.

The song—if it may so be called—of the bird is set in the minor key, and has a peculiar intonation, which is almost articulate, and is variously rendered. For example, it is well represented by the words, “A little bit of bread and *no* cheese!” the last syllable but one being strongly accented. In Scotland it assumes a sense quite in accordance with the character of its surroundings, and is supposed to say, “De’il, de’il, de’il *take* ye.” So, in revenge for the sentiment by which the bird is supposed to be actuated, the rustics persecute the bright little creature most shamefully, killing the parents, breaking the eggs and destroying the nests, whenever they can find an opportunity. Mr. Thompson says that, to his ears, the cry of the Yellow Bunting is of a mournful character, in which opinion I cannot at all agree with him, having many a time been cheered by the odd little tones that were poured forth close to my ear.

The nest of the Yellow Bunting is generally placed upon or very close to the earth, and



YELLOW BUNTING, OR YELLOW AMMER.—*Emberiza citrinella*.

the best place to seek for the structure, is the bottom of a hedge, where the grass has been allowed to grow freely, and the ground has been well drained by the ditch. In rustic parlance, a “rough gripe” is the place wherein to look for the Yellow Ammer’s nest. It is a neatly-built edifice, composed chiefly of grasses, and lined with hair. The eggs are five in number, and their color is white, with a dash of very pale purple, and dotted and scribbled all over with dark purple-brown. Both dots and lines are most variable, and it also frequently happens that an egg appears with hardly a mark upon it, while others in the same nest are entirely covered with the quaint-looking decorations. Generally the nest is built later than that of most small birds, but there are instances when it has been completed and the five eggs laid as early as January, or even December. •

Both parents are strongly attached to each other and to their young, and during the last few days of incubation the mother bird becomes so fearless that she will sit in her nest even when she is discovered, and in some instances has even suffered herself to be touched before she would leave her charge.

About the end of autumn, all the young birds have been fully fledged, and instead of haunting the hedge-rows, they assemble in considerable flocks, and visit the fields in search of food. In the winter, should the weather be severe, they become very bold, and joining the sparrows, and other little birds, enter the farm-yards and cultivated grounds, and endeavor to pick up a subsistence. When food is plentiful, the Yellow Ammer becomes very fat, and in some instances is killed for the table, being thought nearly as good as the celebrated ortolan, to which bird it is closely allied.

The reader may probably have remarked, that I have called the bird Yellow Ammer, and not Yellow Hammer, as is mostly the case. The correction is due to Mr. Yarrell, who well observes that, "I have ventured to restore to this bird what I believe to have been its first English name, Yellow Ammer, although it appears to have been printed Yellow Ham and Yellow Hammer from the days of Drs. William Turner and Merrett to the present time. The word Ammer is a well-known German term for Bunting in very common use. Thus Bechstein employs the names Schnee-ammer, Grau-ammer, Rohr-ammer, Garten-ammer, and Gold-ammer, for the Snow Bunting, Corn Bunting, Reed Bunting, Ortolan or Garden Bunting, and Yellow Bunting. Prefixing the letter H to the word appears to be unnecessary and even erroneous, as suggesting a notion which has no reference to any known habit or quality in the bird."

The general color of this bird is bright yellow, variegated with patches of dark brown, and having a richly mottled brownish-yellow on the back, with a decided warm ruddy tinge. The primary feathers of the wing are black, edged with yellow, and the remainder of the feathers throughout, with all the wing-coverts, are deep brown-black, edged with ruddy brown. The chin, throat, and all the under parts of the body are bright, pure yellow, sobering into rusty-brown on the flanks. The female is similarly marked, but is not so brilliant in her hues. The total length of the bird is about seven inches.

THE ORTOLAN, OR GARDEN BUNTING, is widely celebrated for the delicacy of its flesh, or rather for that of its fat; the fat of the Ortolan being somewhat analogous to the green fat of the turtle, in the opinion of gourmands.

The Ortolan is most frequently found on the European continent, where its advent is expected with great anxiety, and vast numbers are annually captured for the table. These birds are not killed at once, as they would not be in proper condition, but they are placed in a dark room, so as to prevent them from moving about, and are fed largely with oats and millet, until they become mere lumps of fat, weighing nearly three ounces, and are then killed and sent to table. The net and decoy-bird are the means that are generally employed for their capture.

The nest of the Ortolan is placed on the ground, generally among corn, and upon a sandy soil, where some slight defence helps to conceal the nest, and to afford a partial shelter from the wind. The materials of which it is made are grasses of different degrees of fineness, and a few hairs which are placed in the interior. The number of eggs is five or six, and their color is pale bluish-white, covered with spots of black. The nest is generally begun in the early part of May. The Ortolan has no real song, its voice being limited to a few monotonous chirping notes.

The coloring of this bird is as follows: The head is gray with a green tinge, and the back is ruddy brown, beautifully mottled with black. The wings are black, with brown edges to the feathers; the chin, throat, and upper portions of the breast are greenish-yellow; and the abdomen is warm buff. The total length of the Ortolan is rather more than six inches.

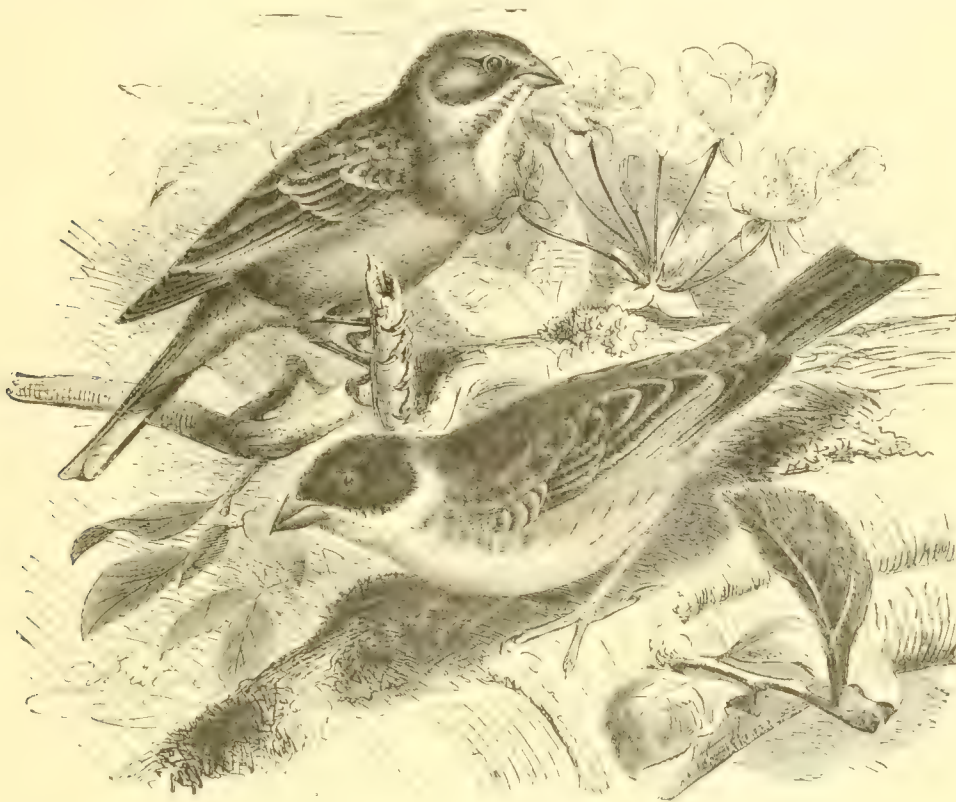
As the COMMON BUNTING is not so brilliant a bird as the Yellow Bunting, it is less noticed, though quite as plentiful.

It is a thick-set and heavily made bird, not being possessed of the elegant shape which is found in its yellow relative. During the spring and summer, the Bunting is generally found in the corn-fields, from which habit it is sometimes termed the Corn Bunting, and is but seldom seen among trees, or on open pasture-lands. Its food chiefly consists of various grass seeds,

especially those of the stronger species, so that it often does good service to the farmer, by preventing the increase of these very stubborn weeds. The millet is a very favorite article of food, as may be supposed from the specific name of *miliaris*, which has been given to the bird by systematic zoologists, and considerable injury is often done to the millet crops by the attacks of the Bunting.

THE BLACK-THROATED BUNTING is a native of America, and is rather less than the preceding species. Of this bird and its habits, Wilson writes as follows:—

“They arrive in Pennsylvania, from the south, about the middle of May, descend in the neighborhood of Philadelphia, and seem to prefer level fields covered with rye grass, timothy or clover, where they build their nest, fixing it on the ground, and forming it of fine, dried grass. The female lays five white eggs, sprinkled with specks and lines of black. Like most part of their genus, they are nowise celebrated for musical powers. Their whole song consists of five notes, or more properly of two notes, the first repeated twice, and slowly, the second



ORTOLAN.—*Emberiza hortulana*.

thrice, and rapidly, resembling ‘chip-chip, che-che-che.’ In their shape and manner they very much resemble the yellow ammers of Britain; like them, they are fond of mounting to the top of some half-grown tree, and there chirruping for half an hour at a time.

“In travelling through different parts of New York and Pennsylvania in spring and summer, whenever I came to level fields of deep grass, I have constantly heard these birds around me. In August they become mute, and soon after, that is, towards the beginning of September, leave us altogether.”

The top of the head is greenish-yellow, the neck is dark ashen-gray, and the back rusty red, touched with black, the same color extending to the wings and tail, but of a darker hue, without the black spots. The chin is white, and the throat is marked with a heart-shaped patch of deep black edged with white. The breast is yellow, and a line of the same hue extends over the eyes and into the lower angle of the bill. The lesser coverts are bay, and the abdomen grayish-white. The total length of the bird is about six inches and a half.

THE SNOW BUNTING, or SNOW FLECK, is one of our winter visitors, and is known by a great variety of names, owing to the manner in which its plumage is colored, according to the time of year or age of the individual. In some places it is called the Tawny Bunting, White Lark, or Pied Finch; in others, the Mountain Bunting, because it is usually found upon the hilly ranges of the countries which it frequents.

It is an interesting bird, and has engaged the attention of almost every practical ornithologist. It generally arrives in the northern regions of Europe at the end of autumn, and remains during the winter; the oldest birds always leaving last and keeping towards the north, while the young birds arrive first, and go farther southward than their elderly relatives. They generally congregate in little flocks, and may be seen scudding over the snow-clad hills, their black wings and tail contrasting strangely with the pure white surface over which they pass. Colonel Montague once shot more than forty out of the same flock, and found that there were hardly any two specimens whose plumage was precisely alike, the feathers varying from the tawny hue of the young bird to the pure white and black of the adult in full winter dress.

While treating of this bird, Mudie gives the following interesting remarks: "There is another trait in the natural history of birds, which, although it may be observed in them all, resident as well as migrate, is yet so conspicuous in the Snow Bunting that this is the proper place for noticing it. The male is the most sensitive to heat, and the female to cold. That difference appears, whether the result of the action of heat be change of place or change of plumage. The males of all our summer birds arrive earlier than the females, and in all resident birds the change of plumage and voice of the male are among the first indications of the spring, taking precedence of most of the vegetable tribes, for the redbreast and the wren sing before the snowdrop flowers appear.

"It seems, too, that the song and the attractions of the male are accessories in aid of the warmth of the season, to produce the influence of the season upon the female; and even as the season advances, the female remains a skulking and hiding bird throughout the season, at least until the young have broken the shell and require her labor to feed, and her courage (which she sometimes requires to a wonderful degree at this time) to protect them. Whether it be that instinct leads the female to husband her heat for the purpose of hatching her eggs, or simply that the thinning of the under plumage, which takes place at that time, is the more conspicuous the more closely the bird sits, it is certain that the females of most birds avoid the sun, and that all cover their eggs from the light during the period of incubation."

Wilson says of this species that it makes its appearance in the northern states early in December, coming in flocks of different sizes, and flying closely together at some little elevation from the ground. They seem to be restless in their disposition, seldom staying long in one spot, and resuming their flight after a short repose. The nest of the Snow Bunting is made in the most retired mountainous districts, and is placed in the cleft of a rock at some distance from other habitations of the same species. It is built of grass and feathers, and is lined with down or the fur of different quadrupeds; the fox and the hare being the most usual. The number of eggs is five, and the color is white spotted with brown.

The song of the Snow Bunting is feeble but pleasing, and is continually uttered while the bird is sitting near its nest. There are, besides, several notes peculiar to this bird; one, a sweet, short call, and the other a harsh, ringing scream of alarm. In several countries this bird is valued for its flesh, which when it is fat is thought to be very delicate, and in Greenland it is captured in great quantities and dried; the Laplanders have an idea that it fattens on the flowing of the tide and grows lean on the ebb.

The food of this bird is rather various, but greatly consists of seeds. According to Wilson, it "derives a considerable part of its food from the seeds of certain aquatic plants, which may be one reason for its preferring those remote northern countries, so generally intersected with streams, ponds, lakes, and sheltered arms of the sea, that probably abound with such plants. In passing down the Seneca river towards Lake Ontario, late in the month of October, I was surprised by the appearance of a large flock of these birds feeding on the surface of the water, supported on the top of a growth of weeds that rise from the bottom, growing so close together

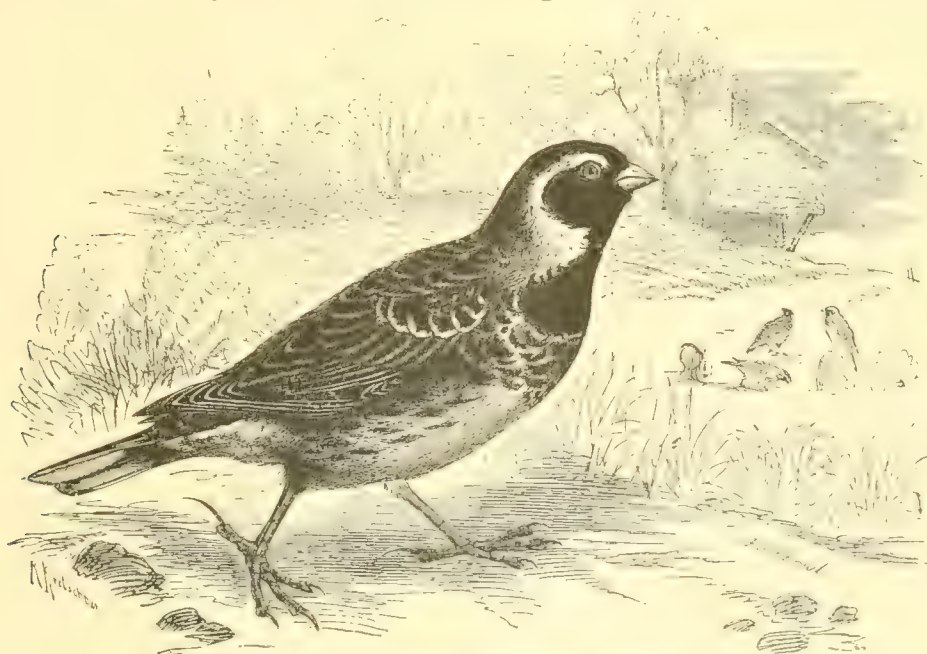
that our boat could with great difficulty make its way through them. They were running about with great activity; and those I shot and examined were filled, not only with the seeds of this plant, but with a minute kind of shell-fish that adheres to the leaves. In this kind of aquatic excursion they are, doubtless, greatly assisted by the length of their hind heel and claws. I also observed a few on Table Rock, above the Falls of Niagara, seemingly in search of the same kind of food."

As has already been noticed, the plumage of the Snow Bunting varies greatly in its coloring, passing through every imaginable stage between the winter and summer dress. The winter plumage of this bird is briefly as follows: The back and part of the wings are dark black-brown, and the whole of the remaining feathers are pure snowy-white. In all cases the amount of black is very variable, and in some instances the entire plumage has been white. In the summer, the color is a tawny-brown, speckled with white, and the back is black, mottled with brown. The quill-feathers of the wing and tail are black, variegated with bay and white, and the under surface dull white, deepening into tawny on the flanks. The length of the bird is about seven inches.

SNOW BUNTING.—*Plectrophanes nivalis*.

Besides the examples already given, there are very many other species of Bunting scattered over the surface of the globe, whose history is equally interesting, but cannot be given in a work of the present dimensions. The species, however, which have already been mentioned are good examples of the group, and will serve as types by which the character of the sub-families may be known.

THE SNOW BUNTING (*Plectrophanes nivalis*) is common to both hemispheres. The entire Arctic circle is inhabited by flocks of this bird during the summer.

LAPLAND LONGSPUR.—*Centrophanes lapponicus*.

THE LAPLAND LONGSPUR, Smith's Bunting, Chestnut-collared Bunting, McCowans, are closely allied species, with similar habits and localities.

A LARGE number of Sparrows inhabit the North American continent. Allied to these are certain Finches and Buntings. Besides those already enumerated, there are forty-six distinct species. Among them the CHIPPING SPARROW (*Spizella domestica*) is an interesting and very familiar species. It is a migrating bird; spending his summer in the north, and sojourning in the south during the winter season.

The Tree Sparrow, Field Sparrow and Song Sparrow are also familiar and welcome visitors in the summer season. Wilson says of the latter: "Of all our Sparrows, this is the most numerous, the most generally diffused over the United States, and by far the earliest, sweetest, and most lasting songster. It is only partially migratory, some staying in the north during winters, in secluded places. It is the first singing-bird in spring, taking precedence even of the Pewee and Blue-bird. Its song continues occasionally through the entire summer and fall, and is sometimes heard even in the depth of winter. The notes or chant are very sweet, but short, resembling the beginning of a canary's song, and frequently repeated, generally from the branches of a bush or small tree, where it sits chanting for an hour or more.

THE LARKS.

THE Larks may be readily recognized by the very great length of the claw of the hind toe, the short and conical bill, and the great length of the tertiary quill-feathers of the wing, which are often as long as the primaries.

The first example of these birds is the well-known SKY-LARK, so deservedly famous for its song and its aspiring character.

This most interesting bird is a native of Europe, and has cheered many a sad heart by its blithe jubilant notes as it wings skyward on strong pinions, or flutters between cloud and earth, pouring out its very soul in its rich wild melody. Early in the spring the Lark begins its song, and continues its musical effort for nearly eight months, so that on almost every warm day of the year on which a country walk is practicable the Sky-lark's happy notes may be heard ringing throughout the air, long after the bird which utters them has dwindled to a mere speck, hardly distinguishable from a midge floating in the sunbeams.

The natural impulse of the bird to hurl himself aloft while singing is so powerful, that when kept in confinement it flings itself against the top of the cage, and would damage itself severely were not a piece of green baize strained tightly as a roof, so as to take away the shock of the upward spring. In a state of nature, the Sky-lark sometimes sings while on the ground, and has been seen to sit on the top of a post, and from that point of vantage to pour forth its light sparkling melody.

Although it is by no means a familiar bird, nor does it seek the society of human beings, it is marvellously indifferent to their presence, and exhibits no discomposure at the close vicinity of the laborer, springing from the ground close to his feet, and singing merrily as it passes by his face. When pressed by danger, it has even been known to place itself under human protection. A gentleman was once riding along a road, when a Sky-lark suddenly dropped on the pommel of his saddle, where it lay with outspread wings, as if wounded to death. When the rider tried to take it up, it shifted round the horse, and finally dropped under the legs of the horse, where it lay cowering, evidently smitten with terror. On looking up, the rider saw a hawk hovering above, evidently waiting to make its swoop, as soon as the Lark left her place of refuge. The Lark presently remounted the saddle, and taking advantage of a moment when the hawk shifted its position, sprang from the saddle, and shot into the hedge, where it was safe.

The following curious instance of a Lark's intelligence I had from the lady who was an eye-witness of the scene.

A pair of Larks had built their nest in a grass field, where they hatched a brood of young. Very soon after the young birds were out of the eggs, the owner of the field was forced to set the mowers to work, the state of the weather forcing him to cut his grass sooner than usual. As the laborers approached the nest, the parent birds seemed to take alarm, and at last the

mother bird laid herself flat upon the ground, with outspread wings and tail, while the male bird took one of the young out of the nest, and by dint of pushing and pulling, got it on its mother's back. She then flew away with her young one over the fields, and soon returned for another. This time, the father took his turn to carry one of the offspring, being assisted by the mother in getting it firmly on his back; and in this manner they carried off the whole brood before the mowers had reached their nest. This is not a solitary instance, as I am acquainted with one more example of this ingenious mode of shifting the young, when the parent-birds feared that their nest was discovered, and carried the brood into some standing wheat.



WOOD-LARK, SKY-LARK, and BONNET-LARK.—*Alauda arborea*, *ariensis*, and *cristata*.

Mr. Yarrell, moreover, mentions that the Lark has been seen in the act of carrying away her young in her claws, but not on her back as in the previous instance. Perhaps the bird would learn the art of carriage by experience, for the poor little bird was dropped from the claws of its parent, and falling from a height of nearly thirty feet, was killed by the shock. It was a bird some eight or ten days old. The Lark has also been known to carry away its eggs when threatened by danger, grasping them with both feet.

The nest of the Sky-lark is always placed on the ground, and generally in some little depression, such as the imprint of a horse's hoof, the side of a mole-hill, or the old furrow of a plough. It is very well concealed, the top of the nest being only just on a level with the surface of the ground, and sometimes below it. I have known several instances where the young Larks would suffer themselves to be fed by hand as they sat in their nests, but the parent birds always seemed rather distressed at the intrusion into their premises. The materials of which it is made are dry grasses, bents, leaves, and hair, the hair being generally used in the lining. It will be seen that the sober coloring of those substances renders the

nest so uniform in tint with the surrounding soil, that to discover it is no easy matter. The eggs are four or five in number, and their color is gray-yellow washed with light brown, and speckled with brown of a darker hue. They are laid in May, and are hatched in about a fortnight.

The young birds are rather precocious, and leave the nest long before they are fully fledged. Even when young, the sexes can be distinguished by the deep yellow of the breast and the more upright carriage. Dealers say that the most certain mode of ascertaining the sex of the Sky-lark is to lay it flat on its back, when, if it be a male, it will spread its tail like a fan.

The flesh of the Lark is very excellent, and thousands of these birds are annually captured and sent to market. Although it may seem a pity to eat a bird of such musical capacities, the Lark multiplies so rapidly that their numbers seem to suffer no perceptible diminution, and possibly their quick death at the hands of the bird-catcher may be a merciful mode of terminating their existence. The food of the Lark consists of grasshoppers, beetles, and other insects, worms, spiders, and various grubs, all of which it finds upon the ground. In the spring and autumn it varies its diet with vegetable food, eating young grass shoots in the spring, and seeds of the wheat in the summer.

The upward flight of this bird is rather remarkable, as it does not consist of a diagonal shoot like that of the pigeon, nor a succession of leaps like that of the eagle and hawk, but is a continual fluttering ascent, taking a spiral course, widening as the bird rises into the air. The form of the spiral has been well described by comparing it to a spiral line wound around the exterior of an ascending column of smoke. Mudie suggests that the bird extends the diameter of the spiral in exact proportion to the sustaining power of the atmosphere, and remarks that while descending the Lark follows the same line which it had taken in its ascent.

During the spring and summer the Sky-lark lives in pairs, and is assiduously employed in attending to the wants of its family, of which it generally produces two broods in each season. Towards the end of autumn and throughout the winter the Larks become very gregarious, "packing" in flocks of thousands in number, and becoming very fat when snow should cover the ground, in which case they speedily lose their condition. These flocks are often augmented by the arrival of numerous little flocks from the continent, that come flying over the sea about the end of autumn, so that the bird-catchers generally reap a rich harvest in a sharp winter.

The color of the Sky-lark is brown of different shades, mingled with a very little white and an occasional tinge of yellow. The feathers on the top of the head form a crest, and are dark brown with paler edges. The whole of the upper parts are brown mottled with a darker hue in the middle of each of them, the throat and upper part of the breast are grayish-brown spotted with dark brown, and the abdomen is yellowish-white deepening into pale brown on the flanks. The greater part of the tail is brown, dark in the centre of the feathers and lighter upon the edges, the two exterior feathers are white streaked with brown on the inner web, and the two next feathers are dark brown streaked with white on the outer web. The total length of this bird is rather more than seven inches.

ANOTHER species of Lark is often mistaken for the preceding species, from which, however, it may be distinguished by its inferior dimensions, its shorter tail, and the light streak over the eye. This is the WOOD-LARK, so called on account of its arboreal tendencies and its capability to perch upon the branches of trees, a power which seems to be denied to the sky-lark. I have, however, seen one or two letters from persons who assert that they have seen the sky-lark singing in trees, and proved the truth of their assertion by shooting the songster.

THERE is a curious genus of Larks called by the name of *Otócoris*, or Eared Larks, on account of the double pencil, or tuft of feathers, which they bear upon their heads, and which project on each side of the face like the pen of a lawyer's clerk from behind his ear. Two species of this genus are now well known to ornithologists, the one being the PENCILLED LARK, and the other the Shore-lark.

The Pencilled Lark is a very rare bird, and has comparatively recently been introduced to science. It is found in Persia, especially about Erzeroum, and is worthy of notice on account of the greatly developed pencils of dark feathers from which it derives its name. It is a prettily, though not brightly, colored bird. The upper part of the body is darkish ash, the wings and quill-feathers being of a brownish cast, with the exception of the external primaries,



PENCILLED LARK.—*Otocoris pencilatus*.

which are white. The forehead, the chin, ear-coverts, breast, and abdomen are white, and the two projecting pencils are jetty black. The top of the head and the nape of the neck are also ashen, but with a purple wash. The tail is dark brown, with the exception of the two central feathers, which are dusky gray.

A CLOSELY allied species is the SHORE-LARK, a bird which has occasionally been seen, and of course killed, in England, although its ordinary dwelling-place is in North America. Of this bird, Wilson speaks as follows:—

“It is one of our winter birds of passage, arriving from the north in the fall; usually staying with us the whole winter, frequenting sandy plains and open downs, and is numerous in the Southern States, as far as Georgia, during that season. They fly high in loose, scattered flocks, and at these times have a singular cry, almost exactly like the sky-lark of Britain.

“They are very numerous in many tracts of New Jersey, and are frequently brought to Philadelphia market. They are then generally very fat, and are considered excellent eating. Their food seems principally to consist of small round compressed seeds, buckwheat, oats, etc., with a large proportion of gravel. On the flat commons, within the boundaries of the city of Philadelphia, flocks of them are regularly seen during the whole winter. In the stomachs of them I have found, in numerous instances, quantities of the eggs or larvæ of certain insects, mixed with a kind of slimy earth. About the middle of March they generally disappear, on their route to the north.”

Forster informs us that they visit the environs of Albany first in the beginning of May, but go farther north to breed; that they feed on grass seeds and buds of the spring birch, and run into small holes, keeping close to the ground; from whence the natives call them

"chi-chup-pi-sue." The pencils which decorate the head of this bird are movable, and are raised or depressed at the will of their owner, thereby producing a very grotesque appearance. It is a remarkable fact that when the bird is dead, they lie so closely among the other feathers, that they can with difficulty be distinguished.

THE well-known BULLFINCH is, perhaps, rather more familiar as a cage bird than as a denizen of the wood, for it is so remarkably shy and retiring in its habits that it keeps itself sedulously out of sight, and though bold enough in the pursuit of food, invading the gardens and orchards with considerable audacity, it yet has a careful eye to its own safety and seldom comes within reach of gunshot.

It cares little for open country, preferring cultivated grounds, woods, and copses, and is very fond of orchards and fruit-gardens, finding there its greatest supply of food. This bird seems to feed almost wholly on buds during their season, and is consequently shot without mercy by the owners of fruit-gardens. The Bullfinch has a curious propensity for selecting those buds which would produce fruit, so that the leafage of the tree is not at all diminished. Although the general verdict of the garden-keeping public goes against the Bullfinch, there are, nevertheless, some owners of gardens who are willing to say a kind word for Bully, and who assert that its mischievous propensities have been much overrated.

It is true that the bird will oftentimes set hard to work upon a fruit-tree, and ruthlessly strip off every single flower-bud, thereby destroying to all appearance the prospects of the crop for that season. Yet there are cases when a gooseberry-bush has thus been completely disbudded, and yet borne a heavy crop of fruit. The reason of this curious phenomenon may probably be, that some of the buds were attacked by insects, and that the kind of pruning process achieved by the Bullfinch was beneficial rather than hurtful to the plant.

The Bullfinch affords a curious instance of the change wrought by domestication.

In its natural state its notes are by no means remarkable, but its memory is so good, and its powers of imitation so singular, that it can be taught to pipe tunes with a sweet and flute-like intonation, having some of that peculiar "woody" quality that is observable in the clarinet. It is always captured very young for this purpose, and from the moment of its capture its instruction begins. The teacher keeps his birds separate, and always plays the tune to be learned upon some instrument, such as a bird-organ or a flageolet, as soon as he has given them their food. The latter instrument always turns out the best birds, as those which are taught with the bird-organ acquire that mechanical precision of note and total absence of feeling which renders the notes of a grinding organ so obnoxious to musical ears.

The birds are always apt to forget their lesson during the moulting season, and if they are permitted at that time to hear other birds, they pick up notes that are entirely foreign to the air which they are meant to perform, and so make a sad jumble. I once knew a piping Bullfinch, a very amusing bird, who had forgotten the first two or three bars of "Cherry-ripe," and always used to commence in a most absurd manner in the very middle of a phrase. He always finished with a long whistle, as of surprise, and then began to chuckle and hop about the table as if greatly charmed with his own performance. He had a great wish to teach me to pipe, and used to give me lessons every time I saw him. Sometimes I would purposely go wrong in the tune, when he would break off his piping, scold harshly, and begin afresh.

The Bullfinch is a remarkably tamable and loving bird, and is easily affected by predilection or dislike for different persons, generally holding fast by its first impulse. The bird which I have just mentioned was most absurd in the violence of his feelings. He was fond of scudding about on a bare mahogany table, and liked to lift up knitting-needles and let them fall, merely for the pleasure of hearing them rattle against the wood. But towards the lady to whom the said needles belonged he had an unappeasable enmity, and so jealous was he, that when she was working at the same table, she dared not touch her thread or scissors without looking to see whether Bully were near, for if he could do so he always dashed across the table and pecked her fingers, hissing loudly with anger, and all his feathers ruffled up.

The lady who was in possession of General Bem gives a very interesting account of a Bull-

finch which went the way of most pets, and perhaps a happier way than that which would have been travelled in their neglected state:—

“The loss of our pet, General Bem, was deeply felt. There was a sad vacancy in our house again which we did not soon expect to have filled. However, one morning, while I yet wept for General Bem, W—— came in with a small cage in his hand, containing a Bullfinch.

“‘See!’ said he, ‘I have brought a fine Bullfinch to cheer you; he sings very sweetly several German airs, and it will fill Bem’s place a little for you.’

“‘No, no, I cannot let him stay; no bird can take Bem’s place; I do not want another bird to love; take him away.’

“‘Poor little Bobby, I found him in the room of a rough fellow who did not care for him, and who gladly exchanged the sullen bird, as he called him, for some trinket. A little girl I saw there told me how sweetly he sang, and I determined to have him at any rate. Must I take the poor bird away? He will be so startled among my clamorers that he will not sing to me.’

“‘Well, let the fellow stay, though I assure you I cannot love him.’

“So he hung the bird-cage on a nail in my room, and I tried to turn my back upon him. I could not help observing, however, that he seemed to relish the glow of my wood fire and the warmth of the room greatly, and was commencing to dress his feathers, and to jump about in his little cage with quite a cheerful air.

“I thought him at all events a sensible bird, and determined to give him a larger cage during the day. I then discovered that he had been so unfortunate as to lose three of his toes, perhaps in the struggles he had made when he had been taken prisoner, by means of the deceitful bird-limed twig, so that he was almost incapable of resistance, if one chose to catch him while in the cage, and then he would only crouch in a corner, and with his bright black eye and beseeching chirp pray to be left at peace.

“For a week or more I took but little notice of him, only admiring his irresistible song, for he became so cheerful as to sing to us once or twice during the twenty-four hours.

“One afternoon, however, I caught myself mimicking the droll whistle with which he would break his song, and which had precisely the sound we expressed by the *whew-o-o-o* when we make what we know to be some ludicrous mistake.

“He instantly repeated it more slowly. I tried again and again till he seemed satisfied, and commenced the first bar of a strain of German music, and then paused. I looked up. ‘What, do you mean to teach me your song?’

“He repeated the notes, and I essayed to reproduce them; my effort, however, seemed to amuse the young master, for he drew out to its fullest extent his *whew-o-o-o-o*, but instantly commenced the bar again. By this time I had become thoroughly interested, and not liking to be laughed at, made a more successful effort. This time Bob seemed more satisfied, and added a few more notes. When I had achieved these, he repeated all and put me to the test, and so on through his whole song; every few moments, however, evidently enjoying the fantastic mistakes which I made, and uttering his whistle in the most provokingly sarcastic tone. I was greatly amused, and related the story with great gusto on my husband’s return.

“The next morning when I came near the cage, the bird came as near me as he could and commenced a pleasant chirping, which evidently meant ‘Good-morning to you.’ This I returned in tones resembling his as nearly as I could, and it finally ended by my taking the young gentleman into my hand and feeding him. He took his seeds from my fingers from that time every morning, for two or three weeks. Then we were to leave C—— for some time, and I sent him back to W——, congratulating myself that I was yet heart-whole as far as Bobby was concerned.

“In about a month we returned, and we called to see the birds. What was my surprise when Master Bullfinch instantly descended from his perch to the corner of the cage nearest to my face, and after the first chirp of greeting commenced singing in a sweet undertone, hovering and turning, his feathers lifted, his eyes gleaming, and his whole expression one of the

most profound admiration for little me. I was quite heartless, only shrugging my shoulders and turning away.

"But I do not know exactly how it came about; in a few weeks I had the painted finch and the Bullfinch quite domesticated in my room, and though I still said I did not love him, yet I talked a great deal to the bird, and as the little fellow grew more and more cheerful and sang louder and oftener each day, and was getting so handsome, I found plenty of reasons for increasing my attention to him, and then above all things he seemed to need my presence quite as much as sunshine, for if I went away, if only to my breakfast, he would utter the most piteous and incessant cries until I returned to him, when in a breath his tones were changed and he sang his most enchanting airs. He made himself most fascinating by his polite adoration; he never considered himself sufficiently well dressed; he was most devoted in his efforts to enchain me by his melodies. Art and nature both were called to his aid, until, finally, I could no longer refrain from expressing in no measured terms my admiration. He was then satisfied, not to cease his attention, but to take a step further; he presented me with a straw, and even with increased appearance of adulation.

"From that time he claimed me wholly; no one else could approach the cage; he would fight most desperately if any one dared to approach, and if they laid a finger on me his fury was unbounded; he would dash himself against the bars of his cage, and bite the wires as if he would obtain his liberty at all hazards, and thus be enabled to punish the offender.

"If I went away now he would first mourn, then endeavor to win me back by sweet songs. In the morning I was awakened by his cries, and if I but moved my hand, his moans were changed to glad greetings. If I sat too quietly at my drawing, he would become weary seemingly, and call me to him; if I would not come, he would say in gentle tone, 'Come here! come here!' so distinctly that all my friends recognized the meaning of the accents at once, and then he would sing to me. All the day he would watch me; if I was cheerful, he sang and was so gay; if I was sad, he would sit by the hour watching every movement, and if I arose from my seat I was called, 'Come-e-here;' and whenever he could manage it, if the wind blew my hair within his cage he would cut it off, calling me to help him, as if he thought I had no right to wear anything else than feathers, and if I would have hair it was only suitable to nest-building! If I let him fly about the room with the painted finch, he would follow so close on my footsteps that I was in constant terror that he would be stepped upon or lost in following me from the room. At last he came to the conclusion that I could not build a nest; I never seemed to understand what to do with the nice materials he gave me, and when I offered to return them, he threw his body to one side and looked at me so drolly from one eye, that I was quite abashed. From that time he seemed to think I must be a very young creature, and more assiduously fed me at stated periods during the day, throwing up from his own stomach the half-digested food for my benefit, precisely in the manner of feeding young birds.

"But I did not like this sort of relationship very much, and determined to keep it down, and forthwith commenced by coldly refusing to be fed, and as fast as I could bring my hard heart to do it, breaking down all the gentle bonds between us.

"The result was sad enough; the poor fellow could not bear it. He sat in wondering grief; he would not eat. At night I took him in my hand and held him to my cheek; he nestled closely and seemed more happy, although his little heart was too full to let him speak. In the morning I scarcely answered his tender low call, 'Come-e-here!' but I sat down to my drawing, thinking if I could be so cold much longer to so gentle and uncomplaining a creature.

"I presently arose and went to the cage. Oh, my poor, poor bird; he lay struggling on the floor. I took him out, I tried to call him back to life in every way that I knew, but it was useless; I saw he was dying, his little frame was even then growing cold within my warm palm. I uttered the call he knew so well; he threw back his head with its yet undimmed eye and tried to answer—the effort was made with his last breath. His eye glazed as I gazed, and his attitude was never changed; his little heart was broken. I can never forgive myself for my cruelty."

THOSE who desire to find the nest of the Bullfinch must search in the thickets and most retired parts of woods or copses, and they may, perhaps, find the nest hidden very carefully away in some leafy branch at no great height from the ground. A thick bush is a very favorite spot for the nest; but I have more than once found them in hazel branches, so slender that their weight has bent them aside. The eggs are very prettily marked with deep violet and purple-brown streaks and mottlings upon a greenish-white ground, and are easily recognizable by the more or less perfect ring which they form round the larger end of the egg. The eggs are generally five in number.

The parents are very fond of their young, and retain them through the autumn and winter, not casting them off until the next breeding season. The families assemble together in little flocks only five or six in number, and may be seen flying about in company, but never associating with birds of any other species.

In confinement it is a very jealous and withal a most combative bird, not easily daunted, and fighting with its fellow-prisoners till one or the other is vanquished, or even killed. These birds have been known to fight continually with other inhabitants of the same cage, and even to kill the goldfinch in spite of his long pointed bill and high spirit. Many persons who keep Bullfinches find their plumage getting gradually darker until at last it assumes a black lue. This change of color is mostly produced by two causes—one the confinement in a smoky atmosphere, and the other the presence of hemp-seed in the food. Hemp-seed, when too liberally given, has often this effect upon the cage-birds, and even the light colors of the goldfinch will darken into dingy black and brown under its influence. The reason of so curious a phenomenon is not known, but it is virtually a problem which, when solved, may be of considerable value.

The color of the adult male bird is as follows:—

The base of the neck and the back are beautiful slaty-gray, which has been known to take a roseate hue. The top of the head, the greater wing-coverts, the upper tail-coverts, and the chin are jetty-black, and the tips of the wing-coverts are snowy-white, so that they form a bold white bar across the wing. The quill-feathers of the wing and tail are deep black with a perceptible violet lustre, and the sides of the head, the throat, breast, and abdomen are light and rather peculiar red with a slight chestnut tinge. As is the case with most birds, varieties are not uncommon. The bill is deep shining black.

The female is not so brilliantly colored as her mate, the gray of the back being of a rather dingy cast, and the red of the under portions being of a purplish-brown hue. Young birds are colored like the female, except that the head is not black. The total length of the bird rather exceeds six inches.

THE CROSS-BILLS, THE PLANT-CUTTERS, AND THE COLIES.

THE CROSS-BILLS are most remarkable birds, and have long been celebrated on account of the singular form of beak from which they derive their name.

In all these birds, the two mandibles completely cross one another, so that at first sight the structure appears to be a malformation, and to prohibit the bird from picking up seeds or feeding itself in any way. But when the Cross-bill is seen feeding, it speedily proves itself to be favored with all the ordinary faculties of birds, and to be as capable of obtaining its food as any of the straight-beaked birds.

The food of the Cross-bill consists almost, if not wholly, of seeds, which it obtains in a very curious manner. It is very fond of apple-pips, and settling on the tree where ripe apples are to be found, attacks the fruit with its beak, and in a very few moments cuts a hole fairly into the “core,” from which it picks out the seeds daintily and eats them, rejecting the ripe pulpy fruit in which they had been enveloped. As the Cross-bill is rather a voracious bird, the havoc which it will make in an orchard may be imagined.

Some persons say that the bird is able to cut an apple in two with a single bite; but I should fancy that in such cases the apple must be of the smallest and the bird of the largest.

for it is hardly larger than the bullfinch, and the head is not at all disproportionate in length to the rest of the body.

This bird is also very fond of the seeds of cone-bearing trees, and haunts the pine-forests in great numbers. While engaged in eating, it breaks the cones from branches, and holding them firmly in its feet after the fashion of the parrots, inserts its beak below the scales, wrenches them away, and with its bone-tipped tongue scoops out the seed. They get their beaks under the scales by partially opening their mouths, so as to bring the extremities of the bill immediately over each other, thus forming a kind of wedge. The points of the beak are then easily inserted like a wedge under the scales, and by suddenly drawing the lower mandible sideways, the scale is detached from the cone.

The power of the beak is quite extraordinary, as the bird evinces no difficulty in breaking open almonds while in the shell, and getting at the kernel. This feat is achieved by pecking a hole in the shell, pushing the point of the beak into the aperture, and then wrenching the shell asunder by a sudden turn of the bill. The apparently clumsy beak is thus shown to be an apparatus adapted in the most perfect manner to the wants of its owner, and to be capable, not only of exerting great force on occasions, but of picking up little seeds as well as could be done by a sparrow or a canary. Indeed, the bird can shell hemp and canary seed with perfect ease and readiness.

As might be gathered from the description of the habits of the Cross-bill, the beak and all its attendants are of very great strength, the muscles on each side of the face being very conspicuous for their size and development. The position of the two mandibles is not at all uniform, nor does it depend, according to some persons, on the sex of the bird. Sometimes the upper mandible is turned to the right and the lower to the left, while in other individuals the reverse arrangement is followed. In either case, the lower mandible is that which is used for the wrenching asunder of the coverings which hide its food.

The Cross-bill is not common in England, although when it does make its appearance it generally comes over in flocks. Usually, it consorts in little assemblies consisting of the parents and their young, but it has often been known to associate in considerable numbers. It is a very shy bird, and has a peculiar knack of concealing itself at a moment's notice, pressing itself closely upon the branches at the least alarm, and remaining without a movement or a sound to indicate its position until the danger has departed.

Mr. Yarrell mentions that on one occasion he had succeeded in shooting seven of these birds upon a tree, and as they still hung upon the boughs, one of the party volunteered to climb the tree in search of them. When he had got among the branches, a flock of eighteen or twenty Cross-bills suddenly flew out, uttering a shrill, sharp cry of alarm. Sometimes flocks of great extent have been noticed in England, upwards of a hundred individuals having been seen in a single flock.

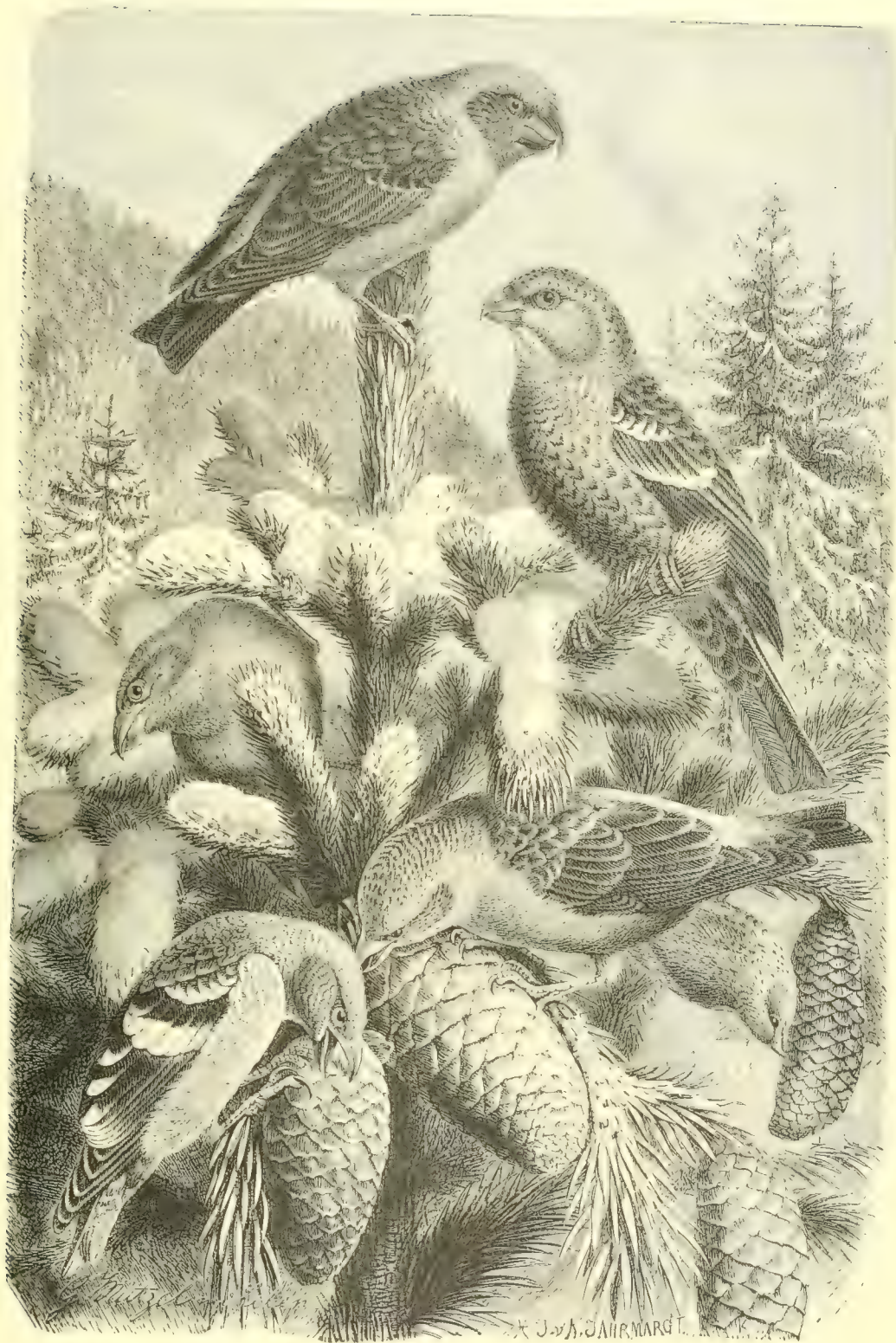
In Sweden and Norway the Cross-bill is a very common bird; and the north of Europe seems to be their proper breeding-place.

The nests are always placed in rather close proximity, so that if one nest is found, others are sure to be at no great distance. The nest is made of little fir-twigs, mosses, and wool, and is of rather a loose texture. It is always found upon the part of the branch that is nearest to the stem. The fir is the tree that is almost always, if not invariably, employed by this bird as the nesting-place. The eggs are generally three, but sometimes four in number, and are something like those of the greenfinch, but rather larger.

The nest is generally built at the end of February or the beginning of March, and the young are remarkable, from the fact that their beaks are not crossed like those of the parents, but made much like those of any other young bird, the crossing not taking place until they are attaining an age and development which will enable them to shift for themselves.

The color of this bird is variable in the extreme, seeming to depend on external circumstances for its difference of tint and depth of hue.

The adult male assumes several varieties of tint, the plumage being colored with red, yellow, or orange, which latter hue, as Mr. Yarrell well observes, is partly covered by the mixture of the other two. His description of the different kinds of plumage is very interesting:



CROSS BILLS.

"A red male now before me, that had completed his moult during his first autumn, has the back dull reddish-brown, darkest in color towards the tip of the upper mandible; the head, rump, throat, breast, and belly tile-red; the feathers on the back mixed with some brown, producing a chestnut-brown; wing-coverts, and quills, and tail-feathers nearly uniform dark brown.

"A second male bird, killed at the same time as the red bird just described, has the head, rump, and under surface of the body pale yellow, tinged with green, the back olive-brown; wings and tail-feathers like those of the red bird.

"A third male, killed at the same time, has the top of the head and the back a mixture of reddish-brown and dark orange; the rump reddish-orange; the upper tail-coverts light orange; the chin, throat, and upper part of the breast red, passing on the lower part of the breast, belly, and sides to orange.

"Red males that have moulted in confinement have changed during the moult to greenish-yellow, and others to light yellow; thus apparently indicating that the yellow color is that of the older livery; but young males, as before observed, certainly sometimes change at once to yellow, without going through either the red or the orange-colored stages. The lightest colors, whether green, yellow, red, or orange, pervade the feathers of the rump and the upper tail-coverts.

"In captivity I have known several instances of red and yellow-colored specimens changing back to dull brown, as dark or even darker than their early plumage. This might be the effect of particular food, which is known to exercise such an influence on other birds; but whether having once assumed light tints, they ever in a wild and healthy state go back to olive-brown or more dull colors, has not, I believe, been ascertained."

The young birds are dark green, covered with horizontal dashes of black. They afterwards assume their yearling plumage, which is a general dull brown, grayish-white on the head, and with the under surface of the body liberally streaked with a darker tint. The female is of a green-yellow, with a dash of brown on the top of the head and the upper surface of the body, changing into a purer yellow on the upper tail-coverts.

The total length of the male bird is rather more than six inches, and the female frequently reaches seven inches in length.

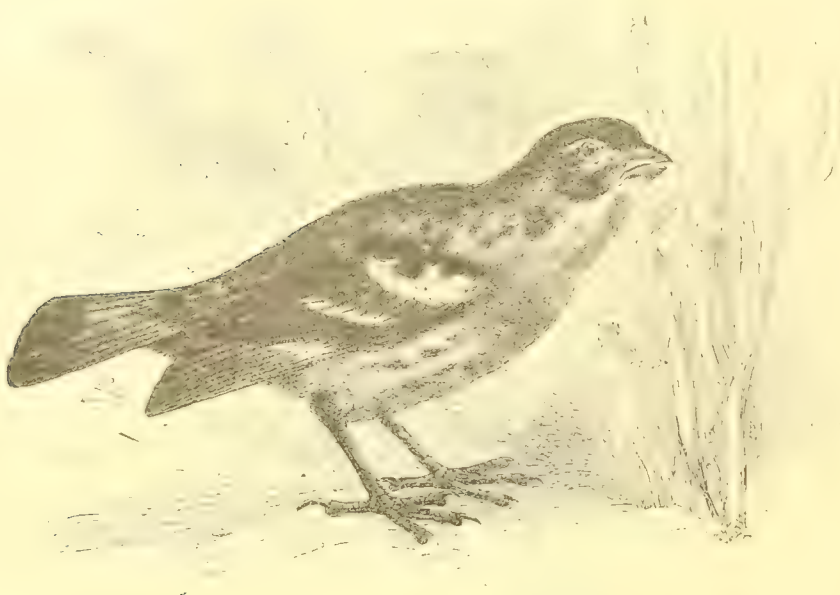
THE CROSS-BILL (*Loxia curvirostra*) is very closely allied to the European species. It breeds in the high northern latitudes, and during the severe winter weather visits the pine forests of New England and the Middle States. The color of plumage is much the same as in the Purple Finch and Pine Finch. When kept as a pet, in a cage, it has many of the habits of the parrots. Two species are recognized—the present, and the White-winged.

There are thirteen other birds closely allied to the preceding, including the Rosy Finch, Mealy Red-poll, Linnets, and other interesting species.

THE PLANT-CUTTERS derive their name from their habit of seizing the plants on which they feed, and nipping their stems asunder with their sharp bills as neatly as if they had been cut with shears. They are all of moderate size, about equalling the bullfinch in dimensions. In order to enable them to obtain their food, their beaks are very sharp and slightly notched.

THE CHILIAN PLANT-CUTTER is rather a large species, being equal to a thrush in dimensions. It is a common bird in its native country, and is most destructive to the crops. It is very fond of sprouting corn, and, not content with eating the green blades, it seems to find such pleasure in the exercise of its bill that it cuts down hundreds of stalks as if in mere wantonness, and leaves the green stems lying strewn about the ground. On account of these destructive propensities, it is greatly persecuted by the agriculturists, who shoot it and trap it, and further aid in its extermination by setting a price on its head, and giving a certain sum to every one who will bring in a dead bird.

The nest is made on the summit of a lofty tree in some very retired situation, so that in spite of all the persecution with which it meets, it still holds its ground against the farmers.



CHILIAN PLANT-CUTTER.—*Phylogoma rara*.

In color it is sober; the usual tints being gray, with a bronze tinge on the back, and somewhat of a slaty hue upon the breast and abdomen. The quill-feathers of the wing and tail are black. Its voice is rather harsh, and consists of a series of rough broken notes.

THE COLIES form a small family of birds, whose exact place among the feathered tribes seems to be rather uncertain. They are inhabitants of Africa and India; and as their plumage is of a soft and silken character, and generally of sober tints,

they often go by the name of Mouse-birds, a title which is also due to their mouse-like manner of creeping among the boughs of trees.

THE SENEGAL, OR LONG-TAILED COLY, is found in Africa, in the country from which it derives its name.



SENEGAL COLY.—*Colinus macrourus*

It is a pretty bird, and as it traverses the branches has a peculiarly elegant appearance; its long tail seeming to balance it in the extraordinary and varied attitudes which it assumes,

Animate Creation.

WE have concluded to submit for public patronage a work with the above title, being a series of exquisite Engravings representing the ANIMAL WORLD, executed with great scientific accuracy, and accompanied by full Descriptive Text, written in popular terms, so as to delight and instruct the people. Anyone who has considered the subject must be at a loss to understand why an ILLUSTRATED NATURAL HISTORY, comprehensive and at the same time popular, has not before this been published in this country. Indeed any lover of animals who has visited the great museums and zoological gardens and has had access to books of engravings in the public libraries, could not fail to remark the wealth of material in existence devoted to this subject. Being confirmed in our conviction of the desirability of such a work, we laid under contribution the best existing authorities for the production of most perfect representations of all the more important living creatures, and among the artists whose delineations will delight the reader, we may mention Harrison Weir, Wolf, Coleman, Fr. Specht, and Mutzel. By far the majority of the engravings in these volumes are from drawings made from the *living* animals, many at the Zoological Society's Gardens in London, England.

We purpose that our patrons shall be aided and interested in their study by such an array of pictures as has never before embellished any Natural History. In numerous instances the engraving is printed in oil-colors, and this portion of the illustrations has been taken charge of by Messrs. L. Prang & Co., of Boston, who we believe rank foremost for high artistic results in this department of printing. These Oleographs were copied under the superintendence of Mr. Prang from the renowned "Tafeln" of "Brehm's Thierleben," so that they may be declared perfectly reliable.

We sought competent advice from various sources as to the most suitable text that should accompany this panorama of handsome Engravings. It was found impossible to embody all the present ideas of naturalists in a single work like this on account of the rapid advances and constant changes in their knowledge of, and habits of thought respecting, the Animal World. And it seemed to us correct that the true object of Zoology is not to arrange, to number, and to ticket animals in a formal inventory, but to inquire into their life-nature, and not simply to investigate the lifeless organism.

What do we know of "Man" from the dissecting-room? Is it not Man, the warrior, the statesman, the poet, etc., that we are interested in? With all veneration which attaches itself to those who are the accredited possessors of abstruse learning, their inordinate use of phraseology detracts too much, we fear, from the fascination that the study of the Animal World would otherwise yield, and as we are not content to have our work restricted to a favored few, we thought the task placed in our hands to be to keep the work free from a repellant vocabulary of conventional technicalities. Our endeavor has been to find an author whose work would be noted for its fund of anecdote and vitality rather than for merely anatomical and scientific presentation, and we arrived at the conclusion that we could not do better than avail ourselves of the Rev. J. G. Wood's comprehensive work—a work most popularly approved by speakers of the English language. It would be superfluous to say one word concerning the standard character of his book, from the pages of which old and young at the other side of the Atlantic have obtained so much instruction and rational amusement. Avoiding the lengthened dissertations and minute classifications of specialists, he presents to his readers in popular terms a complete treatise on the Animal Kingdom of all climes and countries. The one objection that could be urged against it was, that animal life in America might be treated more fully and American forms given more consideration. In order to obviate this drawback and to do full justice to the creatures of our own country, we secured the aid of Dr. J. B. HOLDER, of the American Museum of Natural History in New York, an undoubted American authority, who has adapted Wood's work to American wants and given prominence to American forms of Animal life.

The splendid work on Rodentia, by Allen, Coues, and others, will be fully consulted. The valuable work on North American Birds, by Baird, Brewer, and Ridgway, will be the guide in the treatment of birds. The late arrangement of the classification and nomenclature of North American Birds, by Mr. Ridgway, and the Committee on that subject of the Ornithologists' Union, will be utilized in full. The arrangement of Mammals will be after the latest classification by Professor Flower, of the Zoological Society of London. So that this will be the first popular Natural History worthy of the name that has made its appearance here, which gives due and full recognition to the animate world surrounding us.

Terms of Publication.

The extent of the work will be 68 parts of 28 pages, at the price of 25 cents each. The entire publication will contain 31 Oleographs and 68 Full Page Engravings on Wood, besides many hundreds of exquisite Illustrations interspersed through the text. The parts will be issued every two weeks, and are payable only as delivered. No subscriber's name will be received for less than the entire work, and anyone removing, or not regularly supplied, will please address the Publisher by mail.

N. E.

SELMAR HESS, Publisher, New York.

Testimonials to the "Tafeln" of Brehm's Thierleben.

The late CHARLES DARWIN writes:—"The illustrations are the best I ever saw in any work. I find it superfluous to enter here into particulars, as I already, in the 'Descent of Man,' have willingly and openly confessed how much I have profited by Mr. Brehm's book, and how highly I esteem it."

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and its highly movable crest being continually raised or depressed, giving it a very spirited aspect.

It is gregarious, living in little companies of four or five in number, and is continually jumping and running about the branches in search of its food, which consists of fruit and buds. The grasp of its feet is very powerful, as much so indeed as that of the parrot; and while traversing the boughs it may often be seen hanging by its feet with its head downward, and occasionally remaining for some time suspended by a single foot. La Vaillant says that this bird, in common with other members of the same family, is fond of sleeping in this singular attitude, and that in the early morning it may often be found so benumbed with cold, that it can be taken by hand before it can loosen its hold from the bough which it grasps so firmly.

Owing to the formation of its feet, which are almost wholly formed for grasping, it is seldom seen on the ground, and when it has alighted, is awkward in its movements. Among the boughs, however, it is all life and energy, leaping about with a quick vivacity that reminds the observer of our common long-tailed titmouse. In climbing from one branch to another, as in lowering themselves, the Colies frequently use their beaks to aid them, after the well-known practice of the parrots.

The nests of the Colies are all large and rounded, and are generally placed in close proximity to each other, five or six being often found on the same branch. The materials of which they are made are slender twigs externally, lined with mosses and soft feathers. The number of the eggs is from four to six. When fat and in good condition, the flesh is said to be delicate and tender. In size it is about equal to a blackbird.

The general color of this species is a rather light chestnut-gray, brightening into ruddy fawn on the forehead. The crest is composed of fine and slender feathers. The nape of the neck takes a blue tint, and the back is gray, changing to slaty-blue on the upper tail-coverts. The chin and the abdomen are pearl-gray, and the chest is of the same light ruddy fawn as the forehead. The beak is thick and sturdy, and is black at the tips, and brown towards the base.

ALLIED to the colies we find another curious and interesting group of birds called the PLANTAIN-EATERS.

These birds are natives of Africa, where they are not at all uncommon, and in the forests which they frequent may be seen flitting among the branches of the lofty trees, gliding among the boughs with great adroitness, and displaying their shining silken plumage to the best advantage. They are wary birds, and seem to have tolerably accurate ideas respecting the range of shot, for they mostly keep to the highest parts of the tree, and can but seldom be approached sufficiently near to be killed by the gun. Their food is almost wholly composed of fruits, and for feeding on such substances they are well suited by their large and peculiarly formed beaks.

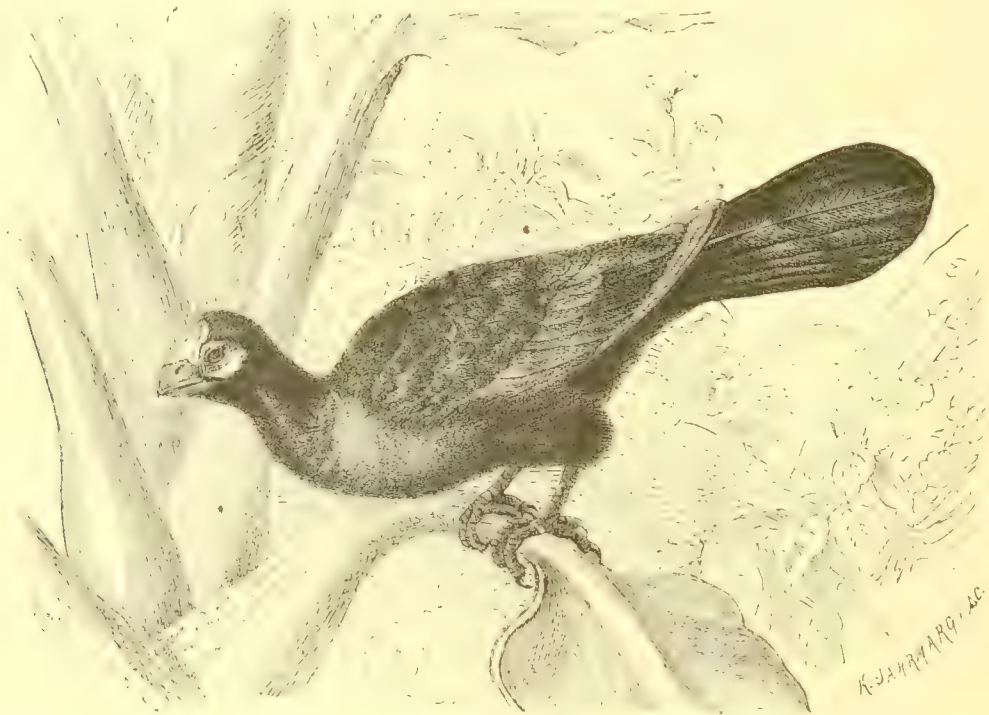
They are all handsome birds, their dimensions averaging those of the European jay, and their plumage glancing with violet, green, purple, and red of different shades. One of the finest of the species is the VIOLET PLANTAIN-EATER, a bird which is found about Senegal and the Gold Coast. It is remarkable for the extraordinary shape and dimensions of the beak, which is everywhere large and prominent, but is especially swollen towards the base, where it expands into a large shield-like mass of horny substance, which spreads over the forehead as far as the crown, where it terminates in a semicircular thickened line. The ridge of the beak is greatly arched, and its sides are much compressed. Its color is equally singular with its shape, for it is of a fine golden-yellow, passing into rich crimson on the upper part of the base.

The top of the head is crimson, not unlike that of the beak, and the feathers are very soft and fine, bearing a velvety or plush-like aspect. The general color of the plumage is very deep violet, appearing black in the shade, and glossed with rich green in many lights. Part of the primary quills of all the secondaries are carmine, softening into delicate lilac, and tipped with deep violet. The large and powerful legs are black.

ANOTHER beautiful example of this group is the WHITE-CRESTED TOURACO.

This bird is remarkable not only for its handsome plumage, but for its peculiar customs. It is even more suspicious and wary than the previous species, and has a peculiar talent for concealing itself. Let a White-crested Touraco only take the alarm, and in a second of time it will be so well hidden that even a practised eye can scarcely obtain a clue of its whereabouts.

It is generally to be found among the branches of trees, and if it should be alarmed, and fly from one tree to another, it will vanish from sight so rapidly that the only way to get a shot at it is by sending some one up the tree to beat each bough in succession. While traversing the branches, it runs along them, always keeping its body in the same line with the bough, so that if it fears any danger, it has only to crawl closely to the upper part of the bough to be quite imperceptible from below. Like the European creepers, or the squirrel, it often avails itself of the thick trunk of a tree to hide itself from a supposed enemy, slipping quietly round the trunk, and always keeping on the opposite side.



VIOLET PLANTAIN-EATER.—*Musophaga violacea*.

Some of these birds are extremely inquisitive, and, in spite of their native caution, will follow a traveller for miles; keeping just out of gunshot, and screaming loudly the while. The general color of this species is olive-green above, except on the crest, which is also green, but of a lighter hue, and is edged with a delicate line of white. The wings take a bluish-purple tint, especially upon the primary quill-feathers, and there is a horizontal streak of pure white beneath each eye. It is about as large as a common jackdaw.

THE BLUE PLANTAIN-EATER, whose color may be known by its popular title, is generally to be found on the lofty trees that skirt the edges of streams, either perched demurely on the boughs, or flitting rapidly through them in search of the fruits and insects on which it feeds.

The wings of this species are but weak, and are unable to endure a lengthened flight. It is rather remarkable that this species should have two distinct modes of flight: the one—which is its most usual method—is by a succession of rapid and apparently laborious flappings; while the other is a graceful soar, in which the bird floats softly through the air, with wings extended and motionless. It never employs its wings if it can avoid doing so, and even in making a short

flight it avails itself of every opportunity of alighting, thinking, like the unfortunate people who live in the courts of royalty, that to sit whenever it gets a chance is the wisest course of conduct.

This duplicate kind of movement extends to its feet as well as its wings. Sometimes it will take a lazy fit, and will sit in a lumpish, drowsy position, as if it were one of the slowest birds among the feathered tribes, its body all huddled up, and its head sunk between its shoulders. But when roused, it leaps in a single instant from this apathetic condition into graceful vivacity, every movement full of life and sparkling energy, traversing the boughs with wonderful speed, its head and neck being darted in every direction, like that of a snake, its crest rapidly raised and depressed, its eyes full of light, and its voice uttering loud and animated cries.

The voice of this and other Plantain-eaters is always of a loud character. It is quite as shy as its comrades, concealing itself in the same effective manner, and displaying more than ordinary precaution when in the vicinity of human habitations. The nest of this bird is made in the hollow of some decaying tree. The general color of this bird is dark blue, marked with verditer-green. The crest is almost black, the abdomen is greenish, and the thighs chestnut.

THE remarkable bird known by the name of HOATZIN, or CRESTED TOURACO, is the sole example of the family or sub-family, as the case may be, to which it belongs. Its exact place in the catalogue of birds is rather unsettled, some authors considering it to belong to the poultry, or the gallinaceous birds, and others looking upon it as one of the true Passerines.

It is a very fine bird, being nearly as large as a peacock, and having somewhat of the same gait and mode of carriage. The peculiar construction of the foot, the outer toe of which cannot be turned backward, has induced zoologists of the present day to separate it from the plantain-eaters, and to consider it as a unique representative of a sub-family.

This bird is a native of tropical America, being found in Guiana and the Brazils, where it leads a gregarious life, assembling together in large flocks, on the banks of creeks and rivers. Although so closely resembling the gallinaceous birds in general appearance and habits, its flesh is, fortunately for itself, quite uneatable, being impregnated with a strong and peculiar odor that deters any but a starving man from making a meal upon it. Perhaps this odor may be caused by its food, which consists almost wholly of the leaves of the arum.

The nest of the Hoatzin is made in the lower part of a tree, and is composed exteriorly of slender twigs, and interiorly of mosses and other soft substances. The eggs are about three or four in number, and their color is grayish-white, besprinkled with red spots. The head of this species is adorned with a tuft of elongated and narrow feathers. Its color is brown above, striped with white, and the breast and throat are light brown washed with gray. The abdomen is deep chestnut, and the tail tipped with white. The bill is short, thick, very convex, and bent downwards at the tip.

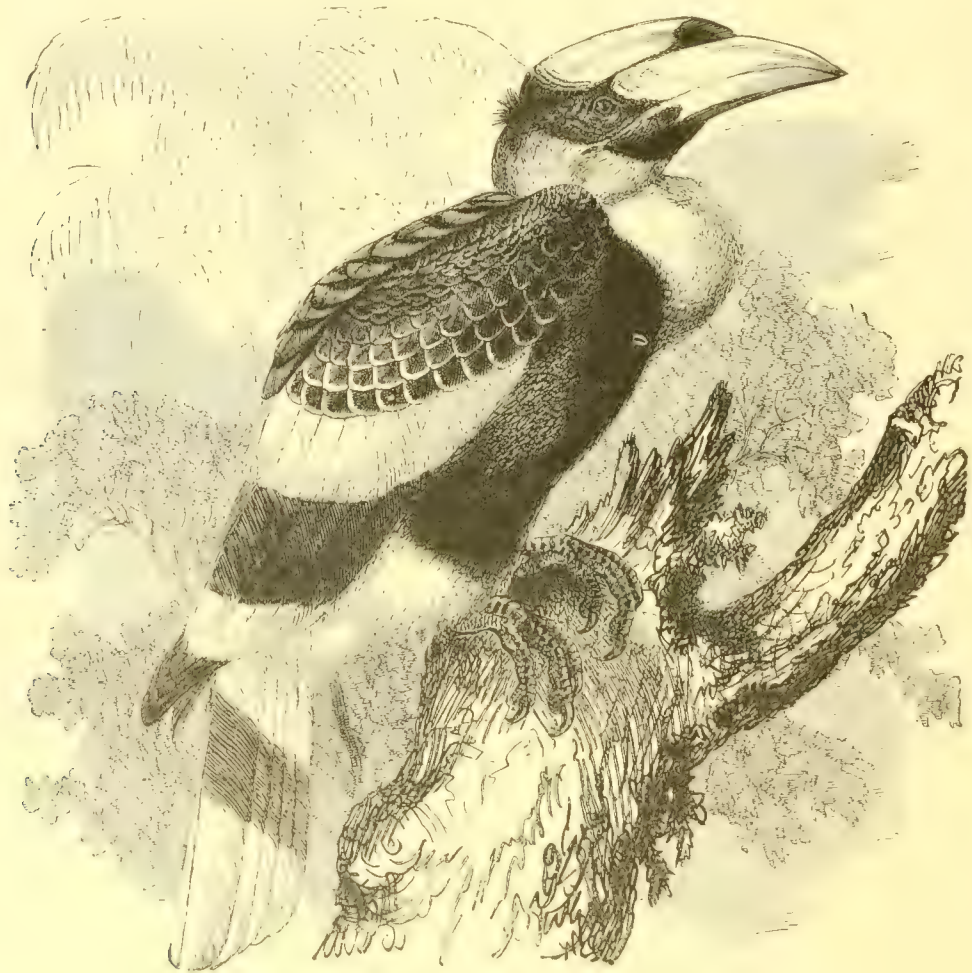
HORN BILLS.

THERE are many strange and wonderful forms among the feathered tribes; but there are, perhaps, none which more astonish the beholder who sees them for the first time, than the group of birds known by the name of HORN BILLS.

They are all distinguished by a very large beak, to which is added a singular helmet-like appendage, equalling the beak itself in some species, while in others it is so small as to attract but little notice. On account of the enormous size of the beak and the helmet, which in some species recede to the crown of the head, the bird appears to be overweighted by the mass of horny substance which it has to carry; but on a closer investigation, the whole structure is found to be singularly light, and yet very strong.

On cutting asunder the beak and helmet of a Hornbill, we shall find that the outer shell of horny substance is very thin indeed, scarcely thicker than the paper on which this description is printed, and that the whole interior is composed of numerous honey-combed cells, with very thin walls and very wide spaces, the walls of the cells being so arranged as to give very great strength when the bill is used for biting, and with a very slight expenditure of material. The whole structure, indeed, reminds us greatly of that beautiful bony network which gives to the skull of the elephant its enormous size and lightness, and which is fully described in the volume on Mammalia, page 598. The general appearance of the dried head of a Hornbill, with its delicate cellular arrangements, and its thin, polished, bony shell, is not unlike the well-known shell of the paper nautilus, and crumbles in the grasp almost as easily.

The most common is the Rhinoceros Hornbill (*Buceros rhinoceros*); one of the handsomest is the White-crested Hornbill (*Buceros albocristatus*); other interesting species are the Crested Hornbill (*Buceros cristatus*), the TWO-HORNED HORNBILL (*Buceros bicornis*), and the Woodpecker Hornbill (*Buceros pica*).



TWO-HORNED HORNBILL.—*Buceros bicornis*.

PERHAPS the greatest development of beak and helmet is found in the RHINOCEROS HORNBILL, although there are many others which have these appendages of great size.

As is the case with all the Hornbills, the beak varies greatly in proportion to the age of the individual, the helmet being almost imperceptible when it is first hatched, and the bill not very striking in its dimensions. But as the bird gains in strength, so does the beak gain in

size, and when it is adult the helmet and beak attain their full proportions. It is said that the age of the Hornbill may be known by inspecting the beak, for that in every year a wrinkle is added to the number of the furrows that are found on the bill.

The object of the huge helmet-like appendage is very obscure, but the probability is that it may aid the bird in producing the loud roaring cry for which it is so celebrated. When at liberty in its native forests, the Hornbill is lively and active, leaping from bough to bough with great lightness, and appearing not to be in the least incommoded by its large beak. It ascends the tree by a succession of easy jumps, each of which brings it to a higher branch, and when it has attained the very summit of the tree, it stops and pours forth a succession of loud roaring sounds, which can be heard at a considerable distance.

The flight of the Hornbill is rather laborious, and performed by rapid flappings of the wings. While in the air the bird has a habit of clattering its great mandibles together, which, with the noise of the wings, produces a most weird-like sound in the forest depths, which is a fertile source of alarm to the timid traveller.

The food of the Hornbill seems to consist both of animal and vegetable matters, and Lesson remarks that those species which inhabit Africa live on carrion, while those that are found in Asia feed on fruits, and that their flesh acquires thereby an agreeable and peculiar flavor—something, we may presume, like that of the famous lamb fed upon pistachio nuts. Perhaps this statement may be too sweeping, and the birds of both continents may in all probability be able to eat both animal and vegetable food.

At all events, the enormous beak of the Rhinoceros Hornbill, which is one of the Asiatic species, appears to be made for the express purpose of destroying animal life, as is now known to be the case with the corresponding member of the toucan. It is hard to think that so formidable a weapon should be given to the Hornbill merely for the purpose of eating fruits; and when we remember that many of the species are acknowledged to be carnivorous, and that the toucan employs its huge and similarly formed beak in the destruction of small quadrupeds and birds, it is but rational to suppose that the Hornbill acts often in a similar fashion.

One individual, a Concave Hornbill (*Buceros cavatus*), which was kept in captivity, was much more attached to animal than vegetable food, and, like the toucan, would seize with avidity a dead mouse, and swallow it entire, after squeezing it once or twice between the saw-shaped edges of its beak. The Rhinoceros Hornbill is said to be oftentimes extremely carnivorous in its habits, and to follow the hunters for the purpose of feeding upon the offal of the deer and other game which they may have killed.

While on the ground, the movements of the Hornbill are rather peculiar, for instead of walking soberly along, as might be expected from a bird of its size, it hops along by a succession of jumps. It is but seldom seen on the ground, preferring the trunks of trees, which its powerful feet are well calculated to clasp firmly.

The color of the Rhinoceros Hornbill is as follows: The general tint of the body is dusky black, changing to grayish-white below. The feathers of the head and neck are long and loose, and more like hairs than feathers. The tail is of a grayish-white, with a bold black band running across it near the extremity. The enormous bill is generally of a yellowish-white color, the upper mandible being of a beautiful red at its base, and the lower mandible black. The helmet is colored with black and white. The length of the bill is about ten inches.

ANOTHER species of this curious group is the WHITE-CRESTED HORNBILL, a bird which is remarkable for the peculiarity from which it derives its name.

Although not nearly so large as the preceding species, it is a truly handsome bird, and, except by an ornithologist, would hardly be recognized as belonging to the same group as the Rhinoceros Hornbill. Its beak, although very large in proportion to the rest of the bird, is not so prominent a feature as in the other Hornbills, and its beautiful white fan-shaped crest takes off much of the grotesque aspect which would otherwise be caused by the large bill. Very little of the helmet is visible in this species, as it is of comparatively small dimensions,

and is hidden by the plummy crown which decorates the head. The tail is very long, and is graduated and colored in a very bold manner, each feather being black, except at the extreme tips, which are snowy white. The general color of this bird is deep, dull black, through which a few very small white feathers protrude at distant intervals; the tail is black, each feather being tipped with white, and the crest is white, with the exception of the black shaft and black tip of each feather.

The noise produced by a flock of Hornbills passing through the air is said to be frightful. The constant clattering of their bills with the utterance of loud croaking, and the rush of such large bodies through the air, has much the effect of a brisk wind. Their voice is like a blast from a bugle.

The nest of some Hornbills is most singular. "The first time I saw one," says Livingston, "was at Kolsberg, when I had gone to the forest for some timber. Standing by a tree, a native looked behind me and exclaimed, 'there is a nest of a Korwé!' I now saw a slit only about a half-inch wide, and three or four inches long, in a slight hollow of the tree. Thinking the word Korwé denoted some small animal, I waited with interest to see what he would extract. He broke the clay, which surrounded the slit, put in his arm, and pulled out a Tockas, or Red-breasted Hornbill. He informed me that when the female enters her nest, she submits to real confinement; the male plasters up the entrance, leaving only a narrow slit that exactly suits the form of his beak, through which to feed his mate. The female makes the nest of her own feathers, lays her eggs, hatches them, and remains with the young until they are fully fledged. During all this time, which is stated to be fully two or three months, the male continues to feed her and the young family. The prisoner generally becomes fat, and is esteemed a very dainty morsel by the natives, while the poor slave of a husband gets so lean, that on the sudden lowering of the temperature that often occurs after a fall of rain, he is benumbed and dies."

Dr. Livingston also gives the following interesting anecdote, illustrative of the affection of these birds to their mates: "Near sunset, on the 25th August," (he writes from Dakomoio Island), "we saw immense flocks of the largest Hornbills (*Buceros cristatus*) come here to roost on the great trees which skirt the edge of the cliffs; they leave early in the morning, often before sunrise, for their feeding places, coming and going in pairs. They are evidently of a loving nature, and strongly attached to each other, the male always nestling close to his mate. A fine male fell to the ground from fear of Dr. Kirk's gun; it was caught and kept on board. The female did not fly off in the morning to feed with the others, but flew around the ship, anxiously trying by the plaintive calls, to induce her beloved one to follow her. She came again in the evening to repeat the performance. The poor disconsolate captive refused to eat, and in five days died of grief, because he could not have her company. No internal injury could be detected after death."

The Great Homray, or Two-horned Hornbill, has been seen five thousand feet above sea level, on the Neilgherries and the Himalayas. It is often seen in flocks of twenty. It is a silent bird generally, making merely a deep but very loud croak. Hodgson says: "The clamor made by a wounded bird is altogether amazing. I cannot liken this vehement vociferation to anything but the braying of a mule. Its power is extraordinary, and is the consequence of an unusually osseous structure of the rings of the trachea. The Homray flies with more repeated flaps of the wings than the others, only, in general, sailing just before alighting. The noise of its wings could be heard a mile distant. Like the others it builds in holes of trees; the male building the female in and plastering the entrance, as in the case just described. Major Trickell has witnessed this operation, and described it with due care of a naturalist. Mason, in his work on Burmah, makes the following statement; "The female must sit during her incubation, for, if she breaks through her enclosure, her life pays the forfeit. But to compensate for loss of freedom, her spirited mate is ever on the watch to gratify his dainty mistress."

Mr. Gilbert remarks of this species, that a small sac is placed at the root of the tail, in which is a bundle or pencil of short bristles, forming a brush, from whence exudes a yellow, oily secretion with which the birds appear to dress their feathers.

SCANSORES, OR CLIMBING BIRDS.



LARGE group of birds is arranged by naturalists under the title of SCANSORES, or CLIMBING BIRDS, and may be recognized by the structure of their feet. Two toes are directed forward and the other two backward, so that the bird is able to take a very powerful hold of the substance on which it is sitting, and this enables some species, as the woodpeckers, to run nimbly up tree-trunks and to hold themselves tightly on the bark while they hammer away with their beaks, and other species, of which the Parrots are familiar examples, to clasp the bough as with a hand. There is some little difficulty in settling the exact limits of this group.

THE very curious birds that go by the name of TOUCANS are not one whit less remarkable

than the hornbills, their beak being often as extravagantly large, and their colors by far superior. They are inhabitants of America, the greater number of species being found in the tropical regions of that country.

Of these birds there are many species. Mr. Gould, in his magnificent work, the "Monograph of the "Rhamphastidæ," figures fifty-one species, and ranks them under six genera.

The most extraordinary part of these birds is the enormous beak, which in some species, such as the Toco Toucan, is of gigantic dimensions, seeming big enough to give its owner a perpetual headache, while in others, such as the Toucanets, it is not so large as to attract much attention.

As in the case of the hornbills, their beak is very thin and is strengthened by a vast number of honeycomb-cells, so that it is very light and does not incommode the bird in the



TOCO.—*Ramphastus toco*.

least. In performing the usual duties of a beak, such as picking up food and pluming the feathers, this apparently unwieldy beak is used with perfect address, and even in flight its weight does not incommode its owner.

The beak partakes of the brilliant coloring which decorates the plumage, but its beautiful hues are sadly evanescent, often disappearing or changing so thoroughly as to give no intimation of their former beauty. The prevailing color seems to be yellow, and the next in order is red, but there is hardly a hue that is not found on the beak of one or other of the species. As examples of the coloring of the beaks, we will mention the following species. In the Toco Toucan it is bright ruddy orange, with a large black oval spot near the extremity; in the Short-billed Toucan it is light green, edged and tipped with red; in the Tocard Toucan it is orange above and chocolate below; in the Red-billed Toucan it is light scarlet and yellow; in Cuvier's Toucan it is bright yellow and black, with a lilac base; in the Curl-crested Araçari it is orange, blue, chocolate, and white; in the Yellow-billed Toucan it is wholly of a creamy-yellow, while in Azara's Araçari it is cream-white with a broad blood-red stripe along the middle. Perhaps the most remarkable bill of all the species is found in the Laminated Hill Toucan (*Andigena laminátus*), where the bill is black, with a blood-red base, and has a large buff-colored shield of horny substance at each side of the upper mandible, the end next the base being fused into the beak, and the other end free. The use of this singular, and I believe unique, appendage is not known.

The flight of the Toucan is quick, and the mode of carrying the head seems to vary in different species, some holding their heads rather high, while others suffer them to droop. Writers on this subject, and indeed, on every point in the history of these birds, are rather contradictory; and we may assume that each bird may vary its mode of flight or carriage in order to suit its convenience at the time. On the ground they get along with a rather awkward hopping movement, their legs being kept widely apart. In ascending a tree the Toucan does not climb, but ascends by a series of jumps from one branch to another, and has a great predilection for the very tops of the loftiest trees, where no missile except a rifle ball can reach him.

The voice of the Toucan is hoarse and rather disagreeable, and is in many cases rather articulate. In one species the cry resembles the word "Tucano," which has given origin to the peculiar name by which the whole group is designated. They have a habit of sitting on the branches in flocks, having a sentinel to guard them, and are fond of lifting up their beaks, clattering them together, and shouting hoarsely, from which custom the natives term them Preacher-birds. Sometimes the whole party, including the sentinel, set up a simultaneous yell, which is so deafeningly loud that it can be heard at the distance of a mile. They are very loquacious birds, and are often discovered through their perpetual chattering.

Grotesque as is their appearance, they have a great hatred of birds which they think to be uglier than themselves, and will surround and "mob" an unfortunate owl that by chance has got into the daylight, with as much zest as is displayed by our crows and magpies at home under similar circumstances. While engaged in this amusement, they get round the poor bird in a circle, and shout at him so, that wherever he turns he sees nothing but great snapping bills, a number of tails bobbing regularly up and down, and threatening gestures in every direction.

In their wild state their food seems to be mostly of a vegetable nature, except in the breeding season, when they repair to the nests of the white ant which have been softened by the rain, break down the walls with their strong beaks, and devour the insects wholesale. One writer says that during the breeding season they live exclusively on this diet. They are very fond of oranges and guavas, and often make such havoc among the fruit-trees, that they are shot by the owner, who revenges himself by eating them, as their flesh is very delicate. In the cool time of the year they are killed in great numbers merely for the purposes of the table.

In domestication they feed on almost any substance, whether animal or vegetable, and are very fond of mice and young birds, which they kill by a sharp grip of the tremendous beak, and pull to pieces as daintily as a jackdaw or magpie. One Toucan, belonging to a friend, killed himself by eating too many ball-cartridges on board a man-of-war. As the habits of most of these birds are very similar, only one species has been figured, for the description of other species would necessarily have been limited to a mere detail of coloring.

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The late CHALLIS DARWIN writes:—"The illustrations are the best I ever saw in any work. I find it superfluous to enter here into particulars, as I already, in the 'Descent of Man,' have willingly and openly confessed how much I have profited by Mr. Brehm's book, and how highly I esteem it."

Sir JOHN LUBBOCK, Bart., D.C.L.:—"You have, I think, done good service in publishing them. They are certainly very admirable."
W. B. CARPENTER, M.D., LL.D., writes:—"I can quite endorse the favorable opinions already given by distinguished zoologists as to the high character of the illustrations generally."

WE have concluded to submit for public patronage a work with the above title, being a series of exquisite Engravings representing the ANIMAL WORLD, executed with great scientific accuracy, and accompanied by full Descriptive Text, written in popular terms, so as to delight and instruct the people. Anyone who has considered the subject must be at a loss to understand why an ILLUSTRATED NATURAL HISTORY, comprehensive and at the same time popular, has not before this been published in this country. Indeed any lover of animals who has visited the great museums and zoological gardens and has had access to books of engravings in the public libraries, could not fail to remark the wealth of material in existence devoted to this subject. Being confirmed in our conviction of the desirability of such a work, we laid under contribution the best existing authorities for the production of most perfect representations of all the more important living creatures, and among the artists whose delineations will delight the reader, we may mention Harrison Weir, Wolf, Coleman, Fr. Specht, and Mutzel. By far the majority of the engravings in these volumes are from drawings made from the *living* animals, many at the Zoological Society's Gardens in London, England.

We purpose that our patrons shall be aided and interested in their study by such an array of pictures as has never before embellished any Natural History. In numerous instances the engraving is printed in oil-colors, and this portion of the illustrations has been taken charge of by Messrs. L. Prang & Co., of Boston, who we believe rank foremost for high artistic results in this department of printing. These Oleographs were copied under the superintendence of Mr. Prang from the renowned "Tafeln" of "Brehm's Thierleben," so that they may be declared perfectly reliable.

We sought competent advice from various sources as to the most suitable text that should accompany this panorama of handsome Engravings. It was found impossible to embody all the present ideas of naturalists in a single work like this on account of the rapid advances and constant changes in their knowledge of, and habits of thought respecting, the Animal World. And it seemed to us correct that the true object of Zoology is not to arrange, to number, and to ticket animals in a formal inventory, but to inquire into their life-nature, and not simply to investigate the lifeless organism.

What do we know of "Man" from the dissecting-room? Is it not Man, the warrior, the statesman, the poet, etc., that we are interested in? With all veneration which attaches itself to those who are the accredited possessors of abstruse learning, their inordinate use of phraseology detracts too much, we fear, from the fascination that the study of the Animal World would otherwise yield, and as we are not content to have our work restricted to a favored few, we thought the task placed in our hands to be to keep the work free from a repellant vocabulary of conventional technicalities. Our endeavor has been to find an author whose work would be noted for its fund of anecdote and vitality rather than for merely anatomical and scientific presentation, and we arrived at the conclusion that we could not do better than avail ourselves of the Rev. J. G. Wood's comprehensive work—a work most popularly approved by speakers of the English language. It would be superfluous to say one word concerning the standard character of his book, from the pages of which old and young at the other side of the Atlantic have obtained so much instruction and rational amusement. Avoiding the lengthened dissertations and minute classifications of specialists, he presents to his readers in popular terms a complete treatise on the Animal Kingdom of all climes and countries. The one objection that could be urged against it was, that animal life in America might be treated more fully and American forms given more consideration. In order to obviate this drawback and to do full justice to the creatures of our own country, we secured the aid of Dr. J. B. HOLDER, of the American Museum of Natural History in New York, an undoubted American authority, who has adapted Wood's work to American wants and given prominence to American forms of Animal life.

The splendid work on Rodentia, by Allen, Coues, and others, will be fully consulted. The valuable work on North American Birds, by Baird, Brewer, and Ridgway, will be the guide in the treatment of birds. The late arrangement of the classification and nomenclature of North American Birds, by Mr. Ridgway, and the Committee on that subject of the Ornithologists' Union, will be utilized in full. The arrangement of Mammals will be after the latest classification by Professor Flower, of the Zoological Society of London. So that this will be the first popular Natural History worthy of the name that has made its appearance here, which gives due and full recognition to the animate world surrounding us.

Terms of Publication.

The extent of the work will be 68 parts of 28 pages, at the price of 25 cents each. The entire publication will contain 31 Oleographs and 68 Full Page Engravings on Wood, besides many hundreds of exquisite Illustrations interspersed through the text. The parts will be issued every two weeks, and are payable only as delivered. No subscriber's name will be received for less than the entire work, and anyone removing, or not regularly supplied, will please address the Publisher by mail.

N. E.

SELMAR HESS, Publisher, New York.

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Animate Creation

A popular edition
of the

Standard
Natural
History

Our
Living
World



Selmar Hess,
Publisher
New York

There exists a very interesting account of an Ariel Toucan and its habits, which has been frequently quoted, but is so graphic a description that any work of this nature would be incomplete without it. It is given by a gentleman fond of birds:—

“After looking at the bird which was the object of my visit, and which was apparently in the highest state of health, I asked the proprietor to bring up a little bird, that I might see how the Toucan would be affected by its appearance. He soon returned, bringing with him a goldfinch, a last year’s bird; the instant he introduced his hand with the goldfinch into the cage of the Toucan, the latter, which was on a perch, snatched it with his bill. The poor little bird had only time to utter a short, weak cry, for within a second it was dead—killed by compression on the sternum and abdomen, and that so powerful, that the bowels were protruded after a very few squeezes of the Toucan’s bill.

“As soon as the goldfinch was dead, the Toucan hopped with it still in his bill to another perch, and placing it with his bill between his right foot and the perch, began to strip off the feathers with his bill. When he had plucked away most of them, he broke the bones of the wings and legs (still holding the little bird in the same position) with his bill, taking the limbs therein, and giving at the same time a strong lateral wrench. He continued this work with great dexterity till he had almost reduced the bird to a shapeless mass; and ever and anon he would take his prey from the perch in his bill, and hop from perch to perch, making at the same time a peculiar hollow, clattering noise; at which times I observed that his bill and wings were affected with a vibratory or shivering motion, though the latter were not expanded.

“He would then return the bird to the perch with his bill, and set his foot on it; he first ate the viscera, and then continued pulling off and swallowing piece after piece, till the head, neck, and part of the sternum, with their soft parts, were alone left. These, after a little more wrenching while they were held on the perch, and mastication, as it were, while they were held in the bill, he at last swallowed, not even leaving the beak or legs of his prey. The last part gave him most trouble; but it was clear that he felt great enjoyment, for whenever he raised his prey from the perch he appeared to exult, now masticating the morsel with his toothed bill, and applying his tongue to it, now attempting to gorge it, and now making the peculiar clattering noise, accompanied by the shivering motion above mentioned. The whole operation, from the time of seizing his prey to that of devouring the last morsel, lasted about a quarter of an hour; he then cleansed his bill from the feathers, by rubbing it against the perches and bars of his cage.

“While on this part of the subject, it may be as well to mention another fact which appears to me not unworthy of notice. I have more than once seen him return his food some time after he had taken it into his crop, and after masticating the morsel for awhile in his bill, again swallow it; the whole operation, particularly the return of the food to the bill, bearing a strong resemblance to the analogous action in ruminating animals. The food on which I saw him so employed was a piece of beef, which had evidently been macerated some time in his crop. While masticating it, he made the same hollow, clattering noise as he made over the remains of the goldfinch.

“Previous to this operation he had examined his feeding trough, in which there was nothing but bread, which I saw him take up and reject, and it appeared to me that he was thus reduced from necessity to the above mode of solacing his palate with animal food. His food consists of bread, boiled vegetables, eggs, and flesh, to which a little bird is now added about every second or third day. He shows a decided preference for animal food, picking out all morsels of that description, and not resorting to the vegetable diet till all the former is exhausted.”

When settling itself to sleep, the Toucan packs itself up in a very systematic manner, supporting its huge beak by resting it on its back, and tucking it completely among the feathers, while it doubles its tail across its back, just as if it moved on a spring hinge. So completely is the bill hidden among the feathers, that hardly a trace of it is visible in spite of its great size and bright color, and the bird when sleeping looks like a great ball of loose feathers.

In the Toco Toucan the beak is of enormous size, being eight inches and a half long, forming rather more than one third of the entire length. Its color is rich, glowing orange, with a large oval patch near the tip, and a black line round the base. There are also a number of darker red bars upon the sides. The head and body are deep black, and the throat and cheeks are white, changing into brimstone-yellow on the breast, edged with a line of blood-red. The upper tail-coverts are grayish-white, and the under tail-coverts deep crimson. Around the eye is a large orange circle, within which is a second circle of cobalt-blue. The eye is rather curious, a green ring encircling the pupil, and a narrow yellow ring encircling the green.

In one species, the Curl-crested Araçair, the feathers of the head assume a most unique and somewhat grotesque form, reminding the observer of a coachman's wig dyed black. On the top of the head the shafts of the feathers, instead of spreading out into webs, become flattened, and are rolled into a profusion of bright shining curls, so that the bird really appears to have been under the tongs of the hair-dresser. Indeed, it appears almost impossible that this singular arrangement of the feathers should not be the work of art.

P A R R O T S .

THE general form of the PARROTS is too well known to need description. All birds belonging to this large and splendid group can be recognized by the shape of their beaks, which are large, and have the upper mandible extensively curved and hanging far over the lower ; in some species the upper mandible is of extraordinary length. The tongue is short, thick, and fleshy, and the structure of this member aids the bird in no slight degree in its singular powers of articulation. The wings and tail are generally long, and in some species, such as the Macaws, the tail is of very great length, while in most of the Parrakeets it is longer than the body.

THE first sub-family of this group is composed of those birds which are called by the title of Ground Parrakeets. In the generality of the Parrot tribe, the legs are short, but in these birds they are of greater length in order to enable them to run freely on the ground. One of the most striking examples of this little group is the PARRAKEET COCKATOO of Australia.

Although not clothed with the brilliant plumage that decorates so many of the Parrot tribe, this bird is a remarkably pretty one, and is worthy of notice not only for the curious crest with which its head is adorned, but for the grace and elegance of its form. With the exception of the head, on which a little crimson and yellow are seen, the plumage of the Parrakeet Cockatoo is simply tinted with brown, gray, and white ; but these colors are so pure, and their arrangement so harmonious, that the eye does not at all look for brighter coloring.

It is mostly seen upon the ground, where it runs with great swiftness, and is very accomplished at winding its way among the grass stems, upon the seeds of which it subsists. It is by no means a shy bird, and will permit of a close approach, so that its habits can be readily watched. When alarmed, it leaves the ground and flies off to the nearest tree, perching upon the branches and crouching down upon them lengthwise so as to be invisible from below. There is no great difficulty in shooting it, which is a matter of some consequence to the hunter, as its flesh is notable for its tenderness and delicate flavor.

The eggs of this species are pure white, which is the case with Parrot eggs generally, and their number is from four to six.

Mr. Gould gives the following description of the Parrakeet Cockatoo :—

“The interior portion of the vast continent of Australia may be said to possess a fauna almost peculiar to itself, but of which our present knowledge is extremely limited. New forms therefore of great interest may be expected when the difficulties which the explorer has

to encounter in his journey towards the centre shall be overcome. This beautiful and elegant bird is one of its denizens. I have, it is true, seen it cross the great mountain ranges and breed on the flats between them and the sea ; still, this is an unusual occurrence, and the few thus found, compared to the thousands observed on the plains stretching from the interior side of the mountains, proves that they have, as it were, overstepped their natural boundary.

"Its range is extended over the whole of the southern portion of Australia, and being strictly a migratory bird, it makes a simultaneous movement southward to within one hundred miles of the coast in September, arriving in the York district near Swan River, in Western Australia, precisely at the same time that it appears in the Liverpool plains in the eastern por-



GROUP OF PARRAKEETS.

tion of the country. After breeding and rearing a numerous progeny, the whole again retire northwards in February and March, but to what degree of latitude towards the tropics they wend their way I have not been able satisfactorily to ascertain. I have never received it from Port Essington or any other port in the same latitude, which, however, is no proof that it does not visit that part of the continent, since it is merely the country near the coast that has yet been traversed. In all probability it will be found at a little distance in the interior wherever there are situations suitable to its habits, but doubtless at approximate periods to those in which it occurs in New South Wales.

"It would appear to be more numerous in the eastern divisions of Australia than in the western. During one summer it was breeding in all the apple-tree (*Angophora*) flats on the Upper Hunter, as well as in similar districts on the Peel and other rivers which flow northward.

"After the breeding season is over, it congregates in numerous flocks before taking its departure. I have seen the ground quite covered by them while engaged in procuring food ;

and it was not an unusual circumstance to see hundreds together in the dead branches of the gum-trees in the neighborhood of water, a plentiful supply of which would appear to be essential to its existence; hence we may reasonably suppose that the interior of the country is not so sterile and inhospitable as is ordinarily imagined, and that it yet may be made available for the uses of man. The Harlequin Bronze-wing and the Warbling Grass Parrakeet are also denizens of that part of the country, and equally unable to exist without water."

THE genus *Platycercus*, or Wide-tailed Parrakeets, to which the YELLOW-BELLIED PARRAKEET belongs, is a very extensive one, and numbers among its members some of the loveliest of the Parrot tribe. They all glow with the purest azure, gold, carmine, and green, and are almost immediately recognizable by the bold lancet-shaped feathers of the back, and the manner in which each feather is defined by its light edging and dark centre.

The Yellow-bellied Parrakeet inhabits the whole of Van Diemen's Land and the islands of Bass Straits, where it is very plentiful, and often so completely familiar as to cause extreme wonder in the mind of an Englishman who for the first time traverses the roads of this strange land, and finds the Parrakeets taking the place of the sparrows of his native country, quite as familiar and almost as pert, perching on the trees or fences, and regarding him with great indifference. But the novelty soon wears off, and before long his only emotions at the sight of a Parrot are hatred at its thieving propensities, and a great longing to eat it. As to this particular species, its flesh is cultivated for its delicacy and peculiar flavor, and Mr. Gould is so appreciative of its merits, that he waxes quite eloquent when speaking of Parrakeet pie.

These birds are gregarious, assembling in little companies, probably composed of the parents and their young, and haunting almost every kind of locality; trees, rocks, grass, fields, or gully, being equally in favor. They are excellent runners, getting over the ground with surprising ease and celerity; and there are few prettier sights than to behold a flock of these gorgeous birds, decked in all the varied beauty of their feathery garments, scudding over the ground in search of food, their whole movements instinct with vivacity, and assuming those graceful attitudes which are best suited for displaying the beauty of the coloring.

The food of these birds consists mostly of grass seeds, but they also feed upon the flowers of the gum-trees, upon grubs and different insects. Whenever there is a scarcity of food, the Yellow-bellied Parrakeets betake themselves to human habitations, and crowd around the farm-doors with as much confidence as if they formed part of the regular establishment. There is, however, not very much need for this intrusion into the farm-yard, as its natural food is simple and varied, and the powers of wing are sufficiently great to carry the bird over a large extent of country. The flight of this species is powerful, and is achieved by means of a series of very wide undulations. Yet on some occasions the mendicant Parrakeets may be counted by hundreds, as they press around the barn-door, disputing every chance grain of corn with the poultry, and behaving with perfect self-reliance.

In captivity, the Yellow-bellied Parrakeet is a hardy bird, and is well adapted for a caged life.

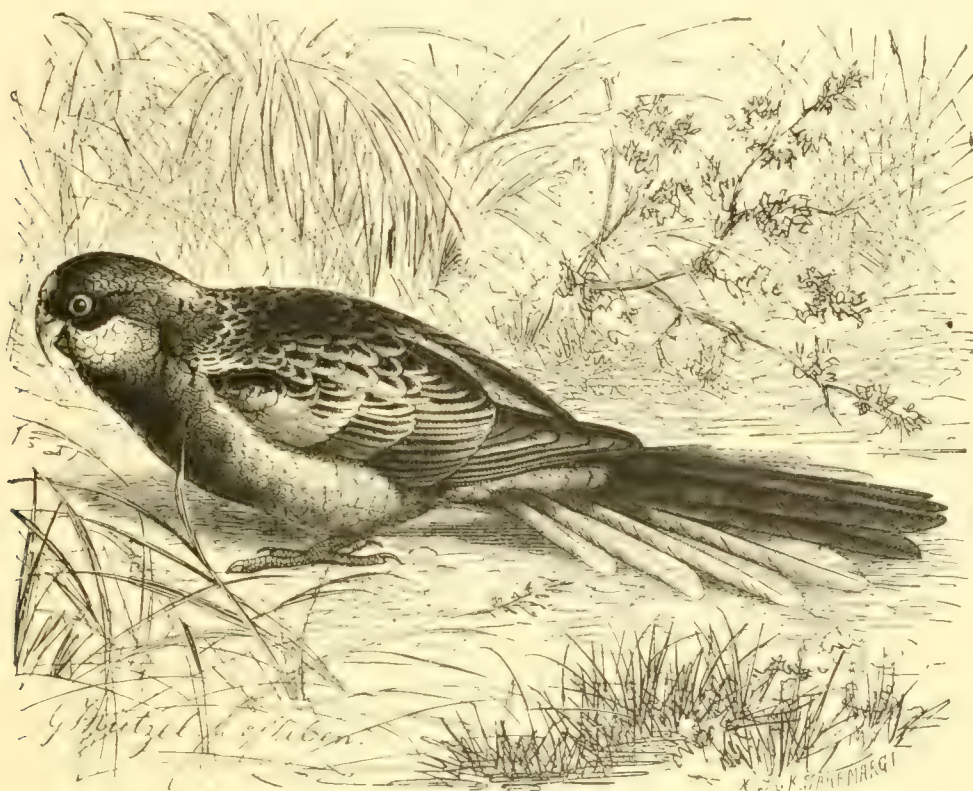
The nest of this bird is made in the bark of a gum-tree, and the eggs are in color a pure white, and in number average from six to eight. The season for nest-building is from September to January. When the young are hatched, they are covered with a coating of soft white cottony down.

The coloring of this species is very magnificent. The forehead is rich crimson, and the back is a peculiar mottled green, each feather being of a deep black-green, edged with the same hue, but of a much lighter character. The throat and the middle of the wings are blue, the breast and abdomen are bright golden-yellow, and the under tail-coverts are marked with a few red dashes. The two middle feathers of the tail are green, and the remainder are blue, dark at the base, but becoming lighter towards the tip. The female is similarly colored, but not so brilliantly.

ANOTHER most beautiful example of this genus is found in the ROSE-HILL PARRAKEET, popularly known to dealers by the name of Rosella Parrot.

This most lovely bird is found in New South Wales and Van Diemen's Land, and although very plentiful in places which it frequents, it is a very local bird, haunting one spot in hundreds, and then becoming invisible for a range of many miles. In the open country it lives in little companies like the preceding species, and is even more familiar, being exceedingly inquisitive, as is the nature of all the Parrot tribe. Plentiful as it is, there are few birds which are likely to suffer more from the gun, as its plumage is so magnificent and its form so elegant that it is in great request among the dealers, who are always sure of a sale when the beautiful skin is properly stuffed and put into a glass case.

The wings of the Rose-hill Parrakeet are not very powerful, and do not seem capable of enduring a journey of very great extent, for the bird always takes opportunities of settling as often as it can do so, and then after running along the ground for awhile, starts afresh. The flight is composed of a succession of undulations. The voice of this species is not so harsh as



ROSE-HILL PARRAKEET.—*Platycercus eximius*.

that of many Parrots, being a pleasing and not very loud whistle, which is often uttered. As the bird is a hardy one, and can bear confinement well, it is coming much into fashion as an inhabitant of the aviary, and will probably be brought away in great numbers. The natural food of the Rose-hill Parrakeet consists of seeds, a diet which it varies by eating many kinds of insects, a food which every Australian bird can have in the greatest variety, and without the slightest fear of stint.

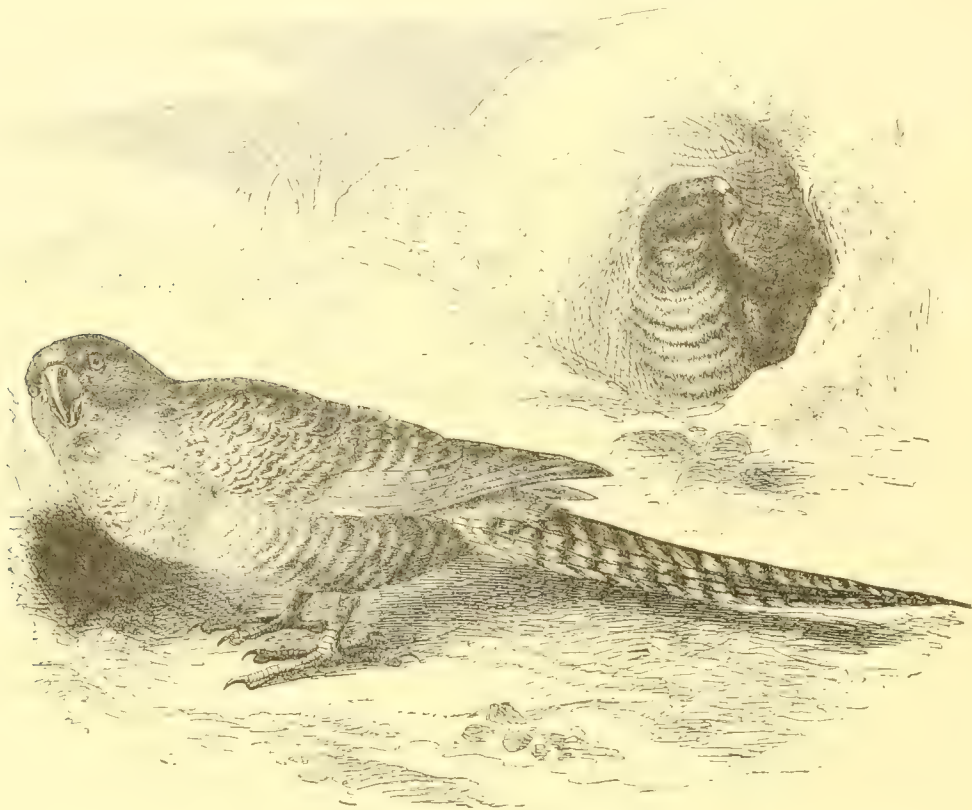
ALTHOUGH not endowed with the glowing hues of the preceding species, the GROUND PARRAKEET is a remarkably pretty and interesting bird.

This species derives its name from its ground-loving habits. Mr. Gould says that it never perches on trees; but the author of "Bush Wanderings in Australia" remarks that he has seen it perching upon the tea-tree scrub. From its peculiarly pheasant-like shape and habits, it is sometimes called the pheasant by the colonists. It is a very common bird, and is found spread over the whole of Southern Australia and Van Diemen's Land.

It is remarkable that this bird, which has much of the outline of the pheasant, should

have many of the habits of our game birds, and a very strong game odor. It runs very rapidly on the ground, and is especially excellent at getting through grass-stems, among which it winds its way with such wonderful celerity, that it can baffle almost any dog. Flight seems to be its last resource; and even when it does take to wing, it remains in the air but a very short time, and then pitches and takes to its feet.

The flight is very low, very quick, as bewilderingly irregular as that of the snipe, but is not maintained for more than a hundred yards. When the dogs come near the place where it is concealed, it crouches closely to the ground, hoping thereby to escape detection; but



GROUND PARRAKEET.—*Pezoporus formosus*.

if this stratagem should prove of no avail, it leaps suddenly into the air, dashes forward for a few yards, and then settles again. This bird makes no nest, and does not even make its home in the hollow of a tree, but lays its white eggs upon the bare ground.

The flesh of the Ground Parrakeet bears some resemblance to that of some game birds, and is said to be somewhat of the same character as that of the snipe or the quail.

The general color of this pretty bird is dark green above, mottled with yellow and variegated with a multitude of black semilunar markings. The under surface is yellow, changing to a greener tint upon the throat, and also mottled with a darker hue. The tail is long and slender, the two central feathers are green barred with yellow, and the rest are marked in just the reverse fashion, being yellow barred with dark green.

THE genus *Palæornis*, of which the RINGED PARRAKEET is an excellent example, is a very extensive one, and has representatives in almost every hot portion of the world, even including Australia.

The Ringed Parrakeet is found both in Africa and Asia, the only difference perceptible between the individuals brought from the two continents being that the Asiatic species is rather larger than its African relative. It has long been the favorite of man as a caged bird, and is one of the species to which such frequent reference is made by the ancient writers, the other species being the Alexandrine Ringed Parrakeet (*Palæornis alexandri*).

The individual from which the illustration is taken, is a very great favorite in the house where he belongs, being looked upon more in the light of a human being than a bird. Her birthday is scrupulously kept, and on that auspicious morning she is always presented with a sponge cake, which she eats daintily while sitting on the mantel-piece, chuckling to herself at intervals. She is a most affectionate little creature, and cannot bear that any of her especial friends should leave the room without bidding farewell; and I once saw her set up such a screech because her mistress happened to go away without speaking to her, that she had to be taken out of her cage and comforted before she would settle quietly.

Her owner has kindly presented to me the following account of the bird:—

“You ask me to tell you something about my little Polly. Perhaps the simplest plan will be to give a sketch of her history, premising that although I believe my little pet to be a male, still, as I love her so tenderly, I always use the feminine pronoun in speaking of and to her.

“Polly’s birth-place was Trincomalee, and she was brought over to America by one of my wife’s sons, an officer in the navy, being accompanied hither by a vast retinue of Parrakeets, almost all of which fell victims to the rough, cold weather which they had to encounter, together with the change of climate. The poor birds literally laid them down and died, the deck being strewn with their elegant forms. Polly, I am thankful to say, was blessed with an excellent constitution, and her nurse, a kind-hearted, weather-beaten sailor, loved her, and she lay in

his bosom and was so kept warm and comfortable through the cold.

“On Polly’s arrival at Portsmouth, her nurse, being obliged to attend to other matters, left her to her own resources in an old cage in which she usually slept, when her horizon was suddenly darkened by a cloud of bum-boat women from the shore, one of whom, seeing her defenceless situation, seized upon her, like Glumdalelitch upon Gulliver, and conveyed the delicate little creature to her coarse bosom. Fortunately for Polly, she uttered a little sound, which was heard by her nurse, who, seizing the woman by the shoulders, rescued Polly from the vile embrace.

“After this *contretemps*, Polly was put into a rickety old cage, with two buns for her nourishment, and sent all by herself in the train to Washington. On her arrival there she was forwarded to a person who had formerly been confidential servant to my wife. One morning, this good person, hearing a great chattering down-stairs, looked in at her back-parlor door, and there, to her infinite surprise, she saw Polly seated upon the cat’s back, chattering away at no allowance, while pussy was majestically marching round the room.



RINGED PARRAKEET.—*Palæornis torquatus*.

"Soon after this we came to Washington, and then saw for the first time our little pet, which soon began to know and love me. Her favorite place is on my shoulder, where at lunch-time she delights to sit and digest after having pecked from my plate whatever she most fancies. If the weather be cold and her feet chilly, she pulls herself up by my whiskers, placing herself on the top of my head, which being partially bald is warm to her little *pattes*. Her favorite resort is generally on my shoulder, and whilst sitting there, her manner of attracting attention is by giving my ear a little peck.

"Whenever I come home, and wherever Polly may be, no sooner do I put my key in the lock, or sometimes before I have quite reached the door, than Polly gives a peculiar shrill call, and then it is known for certain that I am in the house. Even when I go to bed, though it may be at one or two in the morning, on my entering the room, however gently, Polly knows I am there, and although apparently asleep and with two thick shawls wrapped round her cage, excluding all light, she immediately utters one little note of welcome.

"She has a peculiar way of contracting her eye when preparing to do or actually doing anything mischievous: when so contracted, the pupil of the eye appears as it were a mere speck of jet. I believe that her fondness for and her sympathetic attachment to me were something more than mere instinct, for if I think strangely of her at any time, even in the middle of the night, she is sure to answer me with her own little note, her eyes remaining shut and her head tucked in her shoulder as though she were fast asleep."

I have noticed the peculiar movement of the eye referred to in this narrative, and must add that the entire eyelid partakes of this curious contraction, the bird possessing the power of circularly contracting the lid, at first quite smoothly, but afterwards with a multitude of tiny radiating wrinkles or puckers, until at last the aperture is reduced to the size of a small pin-hole. It looks, to use a familiar illustration, as if the eyelid were made of India-rubber, and could be contracted or relaxed at will.

Perhaps this power of reducing the aperture of vision may be given to the bird for the purpose of enabling it to see the better, and may have some connection with the united microscopic and telescopic vision which all birds possess in a greater less or degree.

This species of Parrakeet is not very good at talking, though it can learn to repeat a few words and is very apt at communicating its own ideas by a language of gesture and information especially its own. It is, however, very docile, and will soon learn any lesson that may be imposed, even that most difficult task to a Parrot—remaining silent while any one is speaking. One of my pupils had one of these birds, of which he was exceedingly fond; and finding that, although his body was in the school-room below, his mind was with his Polly in the room above, I allowed her to stay in the room on condition that the lesson should be properly learned. At first, however, Polly used to screech so continually that all lessons were stopped for the time, and I was fearful that Polly must be banished. However, I soon overcame the difficulty, for every time that Polly screamed I used to put her into a dark cupboard and not release her for some time. She soon found out my meaning, and it was very amusing to see her push out her head ready for a scream, and then check herself suddenly.

She was a very nice Polly, and became a great favorite. Her great treat was a half walnut, which she held tightly in one claw while she delicately prized out the kernel with her hooked bill and horny tongue. The end of the poor bird was very tragic; she got out of window, flew to a tree, and was there shot by a stupid farmer. The history of this bird is given more at length in "My Feathered Friends."

The general color of this species is grass-green, variegated in the adult male as follows: The feathers of the forehead are light green, which take a bluish tinge as they approach the crown and nape of the neck, where they are of a lovely purple blue. Just below the purple runs a narrow band of rose color, and immediately below the rosy line is a streak of black, which is narrow towards the back of the neck, but soon becomes broader and envelops the cheek and chin. It does not go quite round the neck, as there is an interval of nearly half an inch on the back of the neck. The quill-feathers of both wings and tail are darkish green; the wings are black beneath, and the tail yellowish. The two central feathers of the tail are

always much longer than the others, sometimes projecting nearly four inches. The female is wholly green, and may thereby be distinguished from her mate. Owing to the variable development of the central feathers of the tail, the length of this bird cannot be accurately given, but may be set down from sixteen to eighteen inches. The upper mandible is coral-red, and the lower is blackish; the feet are flesh-colored.

ONE of the very prettiest and most interesting of the Parrot tribe is the GRASS, or ZEBRA PARRAKEET; deriving its names from its habits and the markings of its plumage.

It is a native of Australia, and may be found in almost all the central portions of that land, whence it has been imported in such great numbers as an inhabitant of our aviaries. This graceful little creature derives its name of Grass Parrakeet from its fondness for the grass lands, where it may be seen in great numbers, running amid the thick grass blades, clinging to their stems, or feeding on their seeds. It is always an inland bird, being very seldom seen between the mountain ranges and the coasts.

Of the habits of this bird Mr. Gould writes as follows: "I found myself surrounded by numbers, breeding in all the hollow spouts of the large Eucalypti bordering the Mokai; and on crossing the plains between that river and the Peel, in the direction of the Turi mountains, I saw them in flocks of many hundreds, feeding upon the grass seeds that are there abundant. So numerous were they, that I determined to encamp upon the spot, in order to observe their habits and to procure specimens. The nature of their food and the excessive heat of these plains compel them frequently to seek the water; hence my camp, which was pitched near some small fords, was constantly surrounded by large numbers, arriving in flocks varying from twenty to a hundred or more.

"The hours at which they were most numerous were early in the morning, and some time before dark in the evening. Before going down to drink, they alight on the neighboring trees, settling together in clusters, sometimes on the dead branches, and at others on the drooping boughs of the Eucalypti. Their flight is remarkably straight and rapid, and is generally accompanied by a screeching noise. During the heat of the day, when sitting motionless among the leaves of the gum-trees, they so closely assimilate in color, particularly on the breast, that they are with difficulty detected."

The voice of this bird is quite unlike the rough screeching sounds in which Parrots seem to delight, and is a gentle, soft, warbling kind of song, which seems to be contained within the body, and is not poured out with that decision which is usually found in birds that can sing, however small their efforts may be. This song, if it may be so called, belongs only to the male bird, who seems to have an idea that his voice must be very agreeable to his mate, for in light warm weather he will warble nearly all day long, and often pushes his beak almost into the ear of his mate, so as to give her the full benefit of his song. The lady, however, does not



WARBLING GRASS PARRAKEET.—*Melopsittacus undulatus*.

seem to appreciate his condescension as he wishes, and sometimes pecks him sharply in return. Dr. Bennett observes that the bird has some ventriloquial powers, as he has noticed a Grass Parrakeet engaged in the amusement of imitating two birds, one warbling and the other chirping.

The food of this Parrakeet consists almost chiefly of seeds, those of the grass plant being their constant food in their native country. In captivity they take well to canary seed, and it is somewhat remarkable that they do not pick up food with their feet, but always with their beaks. It is a great mistake to confine these lively little birds in a small cage, as their wild habits are peculiarly lively and active, and require much space. The difference between a Grass Parrakeet when in a little cage and after it has been removed into a large house, where it has plenty of space to move about, is really wonderful.

This species has frequently bred in captivity, and nest-making is of very common occurrence, though it often happens that the female deserts her eggs before they are hatched. A correspondent of a sport newspaper writes as follows: "Having been very successful in breeding most of the common birds in cages, I was induced to try the Australian Parrakeet, commonly known as the Grass Warbling Parrakeet, and I now have the pleasure of making known to you what I consider my most extraordinary success. Between the 24th of December last and the present month, I have reared eleven from one pair, and having watched their habits very carefully, I venture to make a few remarks upon them.

"They do not build a nest as most birds do, but must have a piece of wood with a rough hole in the middle, and this they will finish to their liking. Let it be kept private, and let them pass through a hole to the nesting-place. When the hen has laid, take the egg out, putting a false one in its place till four have been laid. This should be attended to, as she only lays on alternate days, and the young would be so far apart in hatching. By so doing I have ascertained the exact time of incubation, and have found it to be seventeen days. I mention this, as persons might otherwise be led astray. These birds feed their young in the same manner as pigeons; the young never gape, but the old ones take the beak in their mouths, and by a peculiar process disgorge the food, which the young take at the same moment. They begin to breed in December, that being their summer. The young are so tame that they will fly after me anywhere."

In another instance, mentioned in the same journal, the birds laid their eggs upon some sawdust and there hatched two young, the number of eggs having been three. This Parrakeet will breed more than once in the season. The young birds get on very fast after hatching, provided that the room be kept warm and the parent well supplied with food. At thirty days of age the young Parrakeet has been observed to feed itself from the seed-drawer of its cage. Groundsel seems to be a favorite diet with them, but it seems that lettuce does not agree with their constitution. With this exception, the Grass Parrakeet may be fed precisely in the same manner as the canary.

In its native land it is a migratory bird, assembling after the breeding season in enormous flocks, as a preparation for their intended journey. The general number of the eggs is three or four, and they are merely laid in the holes of the gum-tree without requiring a nest.

The general color of this pretty bird is dark mottled green, variegated with other colors. The forehead is yellow, and the head, the nape of the neck, the upper part of the back, the scapularies and the wing-coverts are light yellowish-green, each feather being marked with a crescent-shaped spot of brown near the tip, so as to produce the peculiar mottling so characteristic of the species. These markings are very small on the head, and increase in size on the back, and from their shape the bird is sometimes called the Shell or Scallop Parrot. On each cheek there is a patch of deep blue, below which are three circular spots of the same rich hue. The wings are brown, having their outer webs deep green, roped with a yellower tint. The throat is yellow, and the abdomen and whole under surface light grass-green. The two central tail-feathers are blue, and the remainder green, each with an oblique band of yellow in the middle.

The young birds have the scallopings all over the head, and the females are colored almost exactly like their mate, who may be distinguished by the cere of the upper part of the beak being of a deep purple.

A VERY beautiful species of Parrakeet, and closely allied to the preceding bird, is the BLUE-BANDED GRASS PARRAKEET, also a native of Australia.

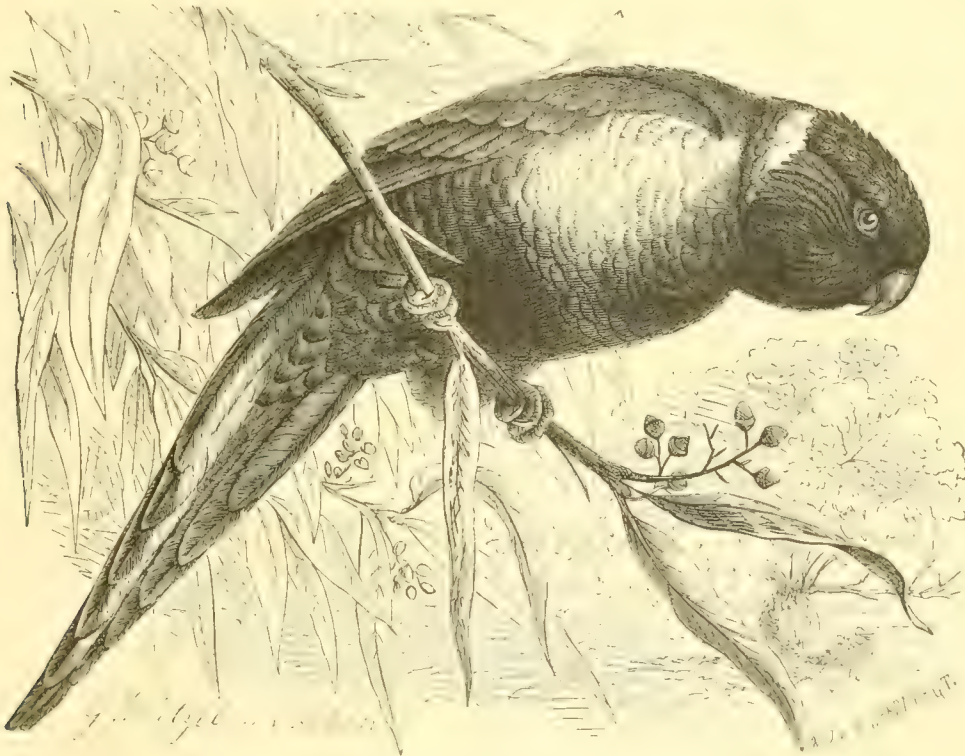
This pretty little Parrakeet is a pleasing and interesting creature, not at all uncommon in its favorite localities.

It is a summer visitor to Van Diemen's Land, where it remains from September to February or March. Thickly wooded places are its usual haunts, as it feeds almost wholly on seeds and grasses, and it is generally seen on the ground unless it has been alarmed. It congregates in flocks, and appears to have but little fear of danger, and but very confused notions of placing itself in safety; for as soon as a flock is alarmed, they all rise screaming feebly, and after flying for a hundred yards or so, again alight. During the short time that they are on the wing, their flight is rapid and very irregular, reminding the European sportsman of the snipe, and being not unlike that of the Ground Parrakeet already mentioned.

It is a very quick runner, and displays great address in threading its way among the grass stems. Sometimes when frightened it will fly to some neighboring tree and there perch for awhile; but it soon leaves the uncongenial branches and returns to the ground. As it is not at all shy, a careful observer can easily approach the flocks within a short distance by moving very slowly and quietly, and can inspect them quite at his ease through a pocket telescope, that invaluable aid to practical ornithologists. As it is a hardy bird and bears confinement well, it is rapidly coming into favor as a cage bird, and will probably earn great popularity, as it is very easily tamed and of a very affectionate nature.

The eggs of this species are six or seven in number, and are generally laid in a convenient hole of a gum-tree, although the bird sometimes prefers the hollow trunk of a prostrate tree for the purpose.

The color of this bird is green with a slight brown wash; the wings, the tail, and a band over the forehead are beautiful azure, and around the eyes and on the centre of the abdomen the color is yellow.



SCALY-BREASTED LORRIKET.—*Trichoglossus chloroleptodus*.

THE pretty bird to which so extravagantly long a name has been given is also a native of Australia, and is found only in New South Wales, being, though plentiful, very local.

THE SCALY-BREASTED LORRIKET is a good example of a very large genus; and as the

habits of all the species are very similar, more than a single example is not necessary. The name *Trichoglossus* signifies "hairy tongue," and is given to these birds in consequence of the structure of that member, which is furnished with bristly hairs like the tongue of the honey-eaters, and is employed for the same purpose. This species may generally be found in those bush ranges which are interspersed with lofty gum-trees, from the blossoms of which it extracts the sweet juices on which it feeds. While employed in feeding, it clings so tightly to the blossoms, that if shot dead its feet still retain their hold. The amount of honey consumed by these birds is really surprising, a teaspoonful of honey having been taken from the crop of a single bird. Whenever the natives kill one of these birds, they always put its head in their mouths and suck the honey out of its crop. Young birds are always very well supplied with this sweet food, and are consequently in great favor with the native epicures.

When captured it is readily tamed, and is sufficiently hardy to live in a cage, provided that it be well supplied with sugar as well as seeds.

It assembles in large flocks of a thousand or more in number; and when one of the vast assemblies is seen perched on a tree, the effect is most magnificent. They are so heartily intent on their food, that they cannot be induced to leave the tree even by the report of a gun or the rattling of a shot among them, and at the best will only scream and go to another branch. This species will associate with others very harmoniously, and Mr. Gould has shot at a single discharge four species of Lorrikeet, all feeding in the most friendly manner upon the same tree.

The Lorrikeets are very conversational birds, and discourse in loud and excited tones, so that the noise of a large flock is quite deafening. When the whole flock rises simultaneously, as is generally the case, and moves to another tree, the effect of all the wings beating the air together is extraordinary, and is said to resemble a thunder-storm mixed with wind.

The color of this species is as follows: The upper surface is rich grass-green, and the under surface, together with a few feathers on the back of the neck, is light yellow with green edges. The under side of the shoulders and the base of the wings are deep scarlet, and the rest of the under surface of the wings is jetty black.

THE MACAWS.

THE MACAWS are mostly inhabitants of Southern America, in which country so many magnificent birds find their home.

They are all very splendid birds, and are remarkable for their great size, their very long tails, and the splendid hues of their plumage. The beak is also very large and powerful, and in some species the ring round the eyes and part of the face are devoid of covering. Three species are well known in our menageries; but as their habits are all very similar, only one example has been figured. This is the great BLUE AND YELLOW MACAW, a bird which is mostly found in Demerara. It is a wood-loving bird, particularly haunting those places where the ground is wet and swampy, and where grows a certain palm on the fruit of which it chiefly feeds.

The wings of this species are strong, and the long tail is so firmly set that considerable powers of flight are manifested. The Macaws often fly at a very high elevation, in large flocks, and are fond of executing sundry aerial evolutions before they alight. With one or two exceptions they care little for the ground, and are generally seen on the summit of the highest trees.

Waterton writes as follows of the RED AND BLUE MACAW:—

"Superior in size and beauty to any Parrot of South America, the Ara will force you to take your eyes from the rest of animated nature and gaze at him; his commanding strength, the flaming scarlet of his body, the lovely variety of red, yellow, blue, and green in his wings, the extraordinary length of his scarlet and blue tail, seem all to join and demand from him the title of emperor of all the parrots. He is scarce in Demerara until you reach the confines of the Macoushi country; there he is in vast abundance; he mostly feeds on trees of the palm species.

“When the coucourite trees have ripe fruit on them, they are covered with this magnificent Parrot. He is not shy or wary; you may take your blowpipe and a quiver of poisoned arrows, and kill more than you are able to carry back to your hut. They are very vociferous, and, like the common Parrots, rise up in bodies towards sunset and fly two and two to their places of rest. It is a grand sight in ornithology to see thousands of Aras flying over your head, low enough to let you have a full view of their flaming mantle. The Indians find the flesh very good, and the feathers serve for ornaments in their head-dresses.”

The Blue and Yellow Macaw generally keeps in pairs, though, like the other species, it will sometimes assemble in flocks of considerable size. When thus congregated, the Macaws become very conversational, and their united cries are most deafening, and can be heard at a great distance, as any one can understand who has visited a Parrot-house. In common with



BLUE AND YELLOW MACAW.—*Ara ararauna*.

the other Macaws, this species is easily tamed, and possesses some powers of imitation, being able to learn and repeat several words, or even phrases. It is not, however, gifted with the extraordinary powers of speech which are so wonderfully developed in the true Parrots, and on account of its deafening cries is not an agreeable inhabitant of a house.

The Macaws lay their eggs in the hollows of decaying trees, and are said to alter the size and form of the hole to their taste by means of their powerful beaks, a feat which they certainly have the ability to perform. The eggs are never more than two, and there are generally two broods in the season. Both parents assist in the duties of incubation.

The GREAT GREEN MACAW, a very splendid species, with green body, scarlet and blue head, blue-tipped wings, and red and blue tail, is not so exclusively an inhabitant of the forest

nor so wary as the preceding species. Taking advantage of the labors of mankind, it makes raids on the maize and corn fields, and does very great damage in a very short time, for its appetite is voracious, and its beak powerful. Like most birds of similar character, it never ventures upon one of these predatory excursions without placing a sentinel on some elevated post where he can see the whole of the surrounding country, and give the alarm to his comrades whenever he fears the approach of danger. So great is the destruction wrought by these birds, that the agriculturists are forced to protect their property by keeping a watch day and night over their corn-fields, from the time when the grain begins to ripen to the day when it is cut and carried.

During the rainy season these Macaws leave the country, and do not return until January or February.

The plumage of the Blue and Yellow Macaw is rather roughly set on the body, and is thus colored : The forehead is green, and the whole of the upper surface; the wings and tail are bright, rich blue of a verditer cast. The cheeks are white and nearly naked, and below the eye are three delicate semilunar streaks of black. Below the chin is a broad, black band, which sweeps round towards the ears, and runs round nearly the whole of the white space. The throat, head, and abdomen are rich, golden yellow, and the under surfaces of the wings and tail are also yellow, but of a more ochreous cast. The bill is deep black, the eye yellowish-white, and the legs and feet blackish-gray.

The entire length of this bird is about forty inches, of which the tail alone occupies nearly two feet. It is not, however, the largest species of Macaw, as the Red and Blue Macaw equals it in size.

ANOTHER species of Macaw is found in the more northern portions of America, though it is popularly called a Parrot, and not a Macaw. This is the well-known CAROLINA PARROT, of which so much has been written by Wilson, Audubon, and other American ornithologists.

This bird is much more hardy than the generality of the Parrot tribe, and has been noticed by Wilson in the month of February flying along the banks of the Ohio in the midst of a snow storm, and in full cry. It inhabits, according to Wilson, "the interior of Louisiana, and the shores of Mississippi and Ohio and their tributary waters, even beyond the Illinois river, to the neighborhood of Lake Michigan in latitude 42° N., and contrary to the generally received opinion, is chiefly resident in all these places. Eastward, however, of the great range of the Alleghany, it is seldom seen farther north than the State of Maryland; though straggling parties have been occasionally observed among the valleys of the Juniata, and according to some, even twenty-five miles to the northwest of Albany, in the State of New York." These accidental visits are, however, rightly regarded by our author as of little value.

The Carolina Parrot is chiefly found in those parts of the country which abound most in rich alluvial soils, on which grow the cockle-burs, so dear to the Parrot and so hated by the farmer. In the destruction of this plant the Carolina Parrot does good service to the sheep-owner, for the prickly fruit is apt to come off upon the wool of the sheep, and in some places so abundantly as to cover it with one dense mass of burs, through which the wool is hardly perceptible. The prickly hooks of the burs also break away from the fruit, and intermingle themselves so thoroughly with the fleece that it is often rendered worthless, the trouble of cleansing it costing more than the value of the wool.

Besides the cockle-burs, the beech-nut and the seeds of the cypress and other trees are favorite food of the Carolina Parrot, which is said to eat apples, but probably only bites them off their stems for wantonness, as it drops them to the ground and there lets them lie undisturbed.

An idea was and may be still prevalent in its native country, that the brains and intestines of the Carolina Parrot were fatal to cats; and Wilson, after some trouble, succeeded in getting a cat and her kittens to feed upon this supposed poisonous diet. The three ate everything excepting the hard bill, and were none the worse for their meal. As, however, the Parrot was in this case a tame one, and had been fed upon Indian corn, he conjectured that the wild Parrot

which had lived on cockle-burs might be injurious to the cat, although that which had eaten the comparatively harmless diet might do no injury. The nest of this bird is made in hollow trees.

One of these Parrots was tamed by Wilson, who gave the following animated description of his favorite and her actions :—

“Anxious to try the effects of education on one of those which I procured at the Big Bone Lick, and which was but slightly wounded in the wing, I fixed up a place for it in the stern of my boat, and presented it with some cockle-burs, which it freely fed on, in less than an hour after it had been on board. The intermediate time between eating and sleeping was occupied in gnawing the sticks that formed its place of confinement, in order to make a practicable breach, which it repeatedly effected.

“When I abandoned the river and travelled by land, I wrapped it up closely in a silk handkerchief, tying it tightly around, and carried it in my pocket. When I stopped for refreshment I unbound my prisoner and gave it its allowance, which it generally despatched with great dexterity, unhusking the seeds from the bur in a twinkling; in doing which it always employed its left foot to hold the bur, as did several others that I kept for some time. I began to think that this might be peculiar to the whole tribe, and that they all were, if I may use the expression, left-footed; but by shooting a number afterwards while engaged in eating mulberries, I found sometimes the left and sometimes the right foot stained with the fruit, the other always clean; from which, and the constant practice of those I kept, it appears that, like the human species in the use of their hands, they do not prefer one or the other indiscriminately, but are either left or right-footed.

“But to return to my prisoner. In recommitting it to ‘durance vile’ we generally had a quarrel, during which it frequently paid me in kind for the wound I had inflicted and for depriving it of liberty, by cutting and almost disabling several of my fingers with its sharp and powerful bill.

“The path between Nashville and Natchez is in some places bad beyond description. There are dangerous creeks to swim, miles of morass to struggle through, rendered almost as gloomy as night by a prodigious growth of timber, and an underwood of canes, and other evergreens, while the descent into these sluggish streams is often ten or fifteen feet perpendicular into a bed of deep clay. In some of the worst of these places, where I had, as it were, to fight my way through, the Paroquet frequently escaped from my pocket, obliging me to dismount and pursue it through the worst of the morass before I could regain it. On these occasions I was several times tempted to abandon it, but I persisted in bringing it along. When at night I encamped in the woods, I placed it on the baggage beside me, where it usually sat with great composure, dozing and gazing at the fire till morning. In this manner I carried it upwards of a thousand miles in my pocket, where it was exposed all day to the jolting of the horse, but regularly liberated at meal times and in the evening, at which it always expressed great satisfaction.

“In passing through the Chickasaw and Choctaw nations, the Indians, whenever I stopped to feed, collected around me—men, women, and children—laughing, and seemingly wonderfully amused with the novelty of my companion. The Chickasaws called it in their language ‘Kelinky,’ but when they heard me call it Poll, they soon repeated the name; and whenever I chanced to stop amongst these people, we soon become familiar with each other through the medium of Poll.

“On arriving at Mr. Dunbar’s, below Natchez, I procured a cage, and placed it under the piazza, where, by its call, it soon attracted the passing flocks, such is the attachment they have for each other. Numerous parties frequently alighted on the trees immediately above, keeping up a constant conversation with the prisoner. One of these I wounded slightly in the wing, and the pleasure Poll expressed on meeting with this new companion was really amusing. She crept close up to it, as it hung on the side of the cage, chattering to it in a low tone of voice as if sympathizing in its misfortune, scratched about its head and neck with her bill, and both at night nestled as close as possible to each other, sometimes Poll’s head being thrust among the plumage of the other.

increase, for after a few circuits round the place they again alighted near me, looking down on their slaughtered companions with such manifest symptoms of sympathy and concern as entirely disarmed me."

The same graceful writer then proceeds to observe, with that accuracy of detail for which his works are so valuable, "I could not but take notice of the remarkable contrast between their elegant manner of flight, and their lame, crawling gait, among the branches. They fly very much like the wild pigeon—in close, compact bodies, and with great rapidity, making a loud and outrageous screaming, not unlike that of the red-headed woodpecker. Their flight is sometimes in a direct line, but most usually circuitous, making a great variety of elegant and easy serpentine meanders as if for pleasure.

"They are particularly attached to the large sycamores, in the hollows of the trunks and branches of which they generally roost; thirty or forty, and sometimes more, entering at the same hole. Here they cling close to the sides of the tree, holding fast by the claws and also by the bill. They appear to be fond of sleep, and often retire to their holes during the day, probably to take a regular siesta. They are extremely sociable with and fond of each other, often scratching each other's heads and necks, and always at night nestling as close as possible to each other, preferring at that time a perpendicular position, supported by their bill and claws."

The general color of this bird is green, washed with blue, and diversified with other tints as follows: The forehead and cheeks are reddish-orange, the same tint is seen on the shoulders and head and wings, and the neck and back of the head are pure golden-yellow. The upper parts of the body are soft green, and the under portions are of the same hue, but with a yellowish cast. The greater wing-coverts are yellow, tinged with green, the primary feathers of the wing are deep purplish black, and the long wedge-shaped tail has the central feathers streaked with blue along their central line. The female is colored after the same fashion, but not so brightly, and the young of both sexes are green on the neck instead of yellow. The total length of this species is about twenty-one inches.

The Carolina Parrot (*Conurus carolinensis*) was once a very common species in the United States east of the Rocky Mountains, being known along the Mississippi Valley to the Great Lakes. They are now quite restricted. Like too many other instances, this bird has a specific name of no significance. The bird is, according to Dr. Coues, "scarcely entitled to a place in the fauna of South Carolina."

As this Parrot is confined to such circumscribed areas, none being found south of the United States, and in view of the already decreased numbers, it would seem almost inevitable that the species will become at no distant day extinct.

The habits of this bird are singular as compared with others of its race. We are accustomed to seeing all of this race of birds confined within tropical limits. Here we have a Parrot living the year through, west of the Alleghanies, in a cold climate; and Barton writes that a very large flock of them was seen northwest of Albany, N. Y., in the year 1780. Wilson saw a flock, in the month of February, on the banks of the Ohio, in a snow-storm, flying about and uttering their peculiar cry. Wilson states that these birds breed in hollow trees.

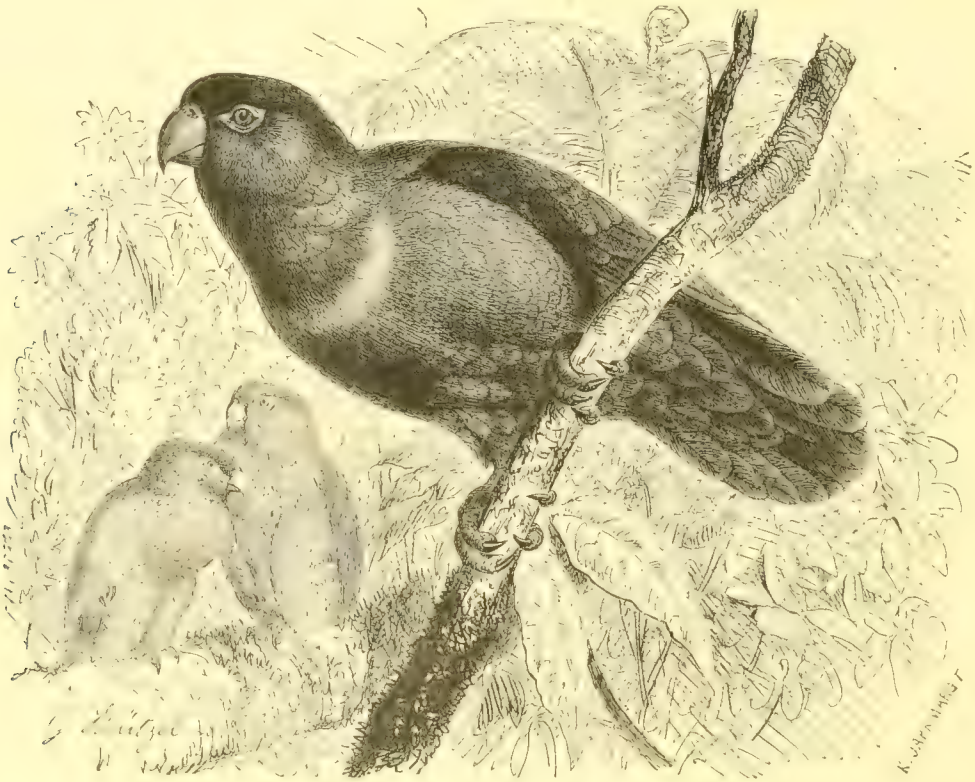
THE LORIES.

IN the Lories the bill is weaker than in the preceding species, and of smaller size, and the plumage is very beautiful, scarlet being the predominating tint.

The PAPUAN LORY is, as its name denotes, a native of Papua and other parts of New Guinea, and has always attracted great attention on account of its beautiful form and rich coloring. In its general shape it is not unlike the ring Parrakeet, the contour of the body being very similar and the tail boldly graduated, with the two central feathers projecting far beyond the rest. This elongated form of the tail-feathers is so unusual in the Lories, which mostly have rather short and stumpy tails, that it has induced systematic naturalists to place the bird in a genus distinct from the other Lories. Many specimens of this lovely bird have

been sent to other countries, but, like the birds of paradise, they are often destitute of legs, and in some cases even the long tail-feathers have been abstracted, thus entirely altering the appearance of the bird.

The colors with which this species is decorated are remarkably rich and intense. The general color is deep scarlet, relieved by patches of azure, golden-yellow and grass-green. The head, neck, the upper part of the back, and all the lower parts of the body are brilliant scarlet, with the exception of two patches of azure-blue across the top of the head, edged with deep purple. There are also some patches of yellow on the sides of the breast and the thighs. The lower parts of the back, the upper tail-coverts, and the lower part of the legs are deep azure, and the wings are green. The two long feathers of the tail are light grass-green for the greater part of their length, and are tipped with golden-yellow. The remaining feathers of the tail have their basal halves deep green, and the remainder golden-yellow. The



PURPLE-CAPPED LORY.—*Domicella atricapilla*.

total length of the Papuan Lory is about seventeen inches, of which measurement the two long tail-feathers occupy no less than eleven inches. The bill is orange-red, and the upper mandible is much longer than the lower, but is not very sharply curved.

ANOTHER beautiful example of these birds is given in the PURPLE-CAPPED LORY, a native of the Moluccas and other islands.

The reader will not fail to observe the great difference in form between this and the preceding species, caused chiefly by the shortness and shape of the tail. It is often used as a cage-bird, and as it is readily tamed, is of an affectionate nature, and can be taught to speak very creditably, is somewhat of a favorite among bird-fanciers. It is a lively and active creature, ever in motion, and is very fond of attracting the notice of strangers and receiving the caresses of those whom it likes.

Like the Papuan Lory, the principal tint of the plumage is rich scarlet, which is in even greater abundance than in that bird. The top of its head is very deep purple, being nearly black on the forehead, and passing into violet on the hinder part of the head. Upon the

upper part of the breast there is a collar of yellow, and with this exception, the whole of the face, neck, back, breast, and abdomen are rich scarlet. The wings are green above, changing to violet on the edges and on the under wing-coverts. The feathers of the tail are rich scarlet at their base, and each feather is banded near its extremity with black, and tipped with yellow. The feathers of the thigh are azure. The bill is yellow, with a tinge of orange, and is rather narrow towards the tip. In spite of its short tail, this bird measures about eleven inches in length, so that it is very much larger than the preceding species.

The true Parrots constitute a group which are easily recognized by their short squared tails, the absence of any crest upon the head, and the toothed edges of the upper mandible. Many species belong to this group, of which we shall find three examples in the following pages.

THE GRAY PARROT has long been celebrated for its wonderful powers of imitation and its excellent memory.

It is a native of Western Africa, and is one of the commonest inhabitants of our aviaries, being brought over in great numbers by sailors, and always finding a ready sale as soon as the vessel arrives in port. Unfortunately the nautical vocabulary is none of the most refined, and the sailors have a malicious pleasure in teaching the birds to repeat some of the most startling of their phrases. The worst of the matter is, that the Parrot's memory is wonderfully tenacious, and even after the lapse of years, and in spite of the most moral training, the bird is apt to break out suddenly with a string of very reprehensible observations affecting the eyes, limbs, and general persons of his hearers.

There is no doubt that the Parrot learns in course of time to attach some amount of meaning to the words which it repeats, for the instances of its apposite answers are too numerous and convincing not to prove that the bird knows the general sense of the phrase, if not the exact force of each word.

I am unwilling to reproduce narratives which I have already published, and therefore restrict myself to one or two original anecdotes.

There was a Parrot belonging to a friend of our family, a Portuguese gentleman. This Parrot was a great favorite in the house, and being accustomed equally to the company of its owner and the rest of the household, was familiar with Portuguese as well as English words and phrases. The bird evidently had the power of appreciating the distinction between the two languages, for if it were addressed, its reply would always be in the language employed.

The bird learned a Portuguese song about itself and its manifold perfections, the words of which I cannot remember. But it would not sing this song if asked to do so in the



GRAY PARROT.—*Psittacus erithacus*.

English language. Saluted in Portuguese, it would answer in the same language, but was never known to confuse the two tongues together. Towards dinner-time it always became very excited, and used to call to the servant whenever she was late, "Sarah, lay the cloth, —want my dinner!" which sentence it would repeat with great volubility, and at the top of its voice.

But as soon as its master's step was heard outside the house, its tone changed, for the loud voice was disagreeable to its owner, who used to punish it for screaming by flipping its beak. So Polly would get off the perch, very humbly sit on the bottom of the cage, put its head to the floor, and instead of shouting for its dinner in the former imperious tone, would whisper in the lowest of voices, "Want my dinner! Sarah, make haste, want my dinner!"

In the well-known autobiography of Lord Dundonald, there is an amusing anecdote of a Parrot which had picked up some nautical phrases, and had learned to use them to good effect.

Some ladies were paying a visit to the vessel, and were hoisted on deck as usual by means of a "whip," *i. e.*, a rope passing through a block on the yard-arm, and attached to the chair on which the lady sits. Two or three had been safely brought on deck, and the chair had just been hoisted out of the boat with its fair freight, when an unlucky Parrot on board suddenly shouted out, "Let go!" The sailors who were hauling up the rope instantly obeyed the supposed order of the boatswain, and away went the poor lady, chair and all, into the sea.

Its power of imitating all kinds of sounds is really astonishing. I have heard the same Parrot imitate, or rather reproduce, in rapid succession the most dissimilar of sounds, without the least effort and with the most astonishing truthfulness. He could whistle lazily like a street idler, cry prawns and shrimps as well as any costermonger, creak like an ungreased "sheave" in the pulley that is set in the blocks through which ropes run for sundry nautical purposes, or keep up a quiet and gentle monologue about his own accomplishments with a simplicity of attitude that was most absurd.

Even in the imitation of louder noises he was equally expert, and could sound the danger whistle or blow off steam with astonishing accuracy. Until I came to understand the bird, I used to wonder why some invisible person was always turning an imperceptible capstan in my close vicinity, for the Parrot had also learned to imitate the grinding of the capstan bars and the metallic clink of the catch as it falls rapidly upon the cogs.

As for the ordinary accomplishments of Parrots, he possessed them in perfection, but in my mind his most perfect performance was the imitation of a dog having his foot run over by a cart-wheel. First there came the sudden half-frightened bark, as the beast found itself in unexpected danger, and then the loud shriek of pain, followed by the series of howls that is popularly termed "pen and ink." Lastly, the howls grew fainter, as the dog was supposed to be limping away, and you really seemed to hear him turn the corner and retreat into the distance. The memory of the bird must have been most tenacious, and its powers of observation far beyond the common order; for he could not have been witness to such canine accidents more than once.

The food of this, as well as the green Parrot, consists chiefly of seeds of various kinds, and in captivity may be varied to some extent. Hemp-seed, grain, canary-seed, and the cones of fir-trees are very favorite articles of diet with this bird. Of the cones it is especially fond, nibbling them to pieces when they are young and tender; but when they are old and ripe, breaking away the hard scales and scooping out the seeds with its very useful tongue. Hawthorne berries are very good for the Parrot, as are several vegetables. These, however, should be given with great caution, as several, such as parsley and chickweed, are very hurtful to the bird.

There are few things which a Parrot likes better than nuts and the stones of various fruits. I once succeeded in obtaining the affections of a Parisian Parrot, solely through the medium of peach-stones, which I always used to save for the bird, and for which he regularly began to gabble as soon as he saw me coming along the street. When taken freshly from the peach the stones are very acceptable to the Parrot, who turns them over and over, chuckling all the while to show his satisfaction, and picking all the soft parts from the deep indentations

in the stone. As a great favor I sometimes used to crack the stone before giving it to him, and his delight then knew no bounds. Walnuts when quite ripe are in great favor with Parrots; and it is very curious to see how well the bird sets to work at picking out their contents, holding the nut firmly with its foot, and hooking out its kernel with the bill and tongue. A split walnut will give a Parrot employment for more than an hour.

Woody fibre is generally beneficial to these birds, who often try to gratify their natural longing for this substance by pulling their perches to pieces. The Parrot owner will find the health of his pet improved and its happiness promoted by giving it, every now and then, a small log or branch, on which the mosses and lichens are still growing. Some persons are in the habit of giving their Parrots pieces of meat, fish, and other similar articles of diet, but generally with evil effects. The diet is too stimulating, and keeps up a continual irritation in the system, which induces the bird to be always pecking out its feathers. Many Parrots have almost stripped themselves of their plumage by this constant restlessness, and I knew of an individual that had contrived to pluck himself completely bare in every part of the body which his bill could reach, so that he presented the ludicrous sight of a bare body and a full-plumaged head. The soaked bread and milk which is so often given to these birds is, also, too heating a diet, and their bread should only be steeped in water.

The Parrot has the true tropical love for hot condiments, and is very fond of cayenne pepper or the capsicum pod from which it is supposed to be made. If the bird be ailing, a capsicum will often set it right again. It is rather curious that my cat has a similar taste, having, I presume, caught it from her master. Some months ago, a careless cook made a "curry" with a dessert-spoonful of cayenne pepper instead of curry powder, to the very great detriment of the throats of the intended consumers. "Pret," as usual, pushed her nose against my hand to ask for some of my dinner, so in joke I gave her a very red piece of the meat. To my profound astonishment, she ate the burning morsel with great zest, and became so clamorous for more that I could hardly satisfy her fast enough.

The Parrot should be able to change its position, as it does not like to sit perpetually on a round perch, and is much relieved by a little walking exercise. If possible, it should have some arrangement to enable it to climb; a matter easily accomplished by means of a little wire cord and a small modicum of ingenuity. There should always be some spot where the Parrot can find a warm perch; as all these birds are singularly plagued with cold feet, and often catch sundry disorders in consequence. If it is kept in a cage, the Parrot should never be confined in a brass prison; for the bird is always climbing about the wires by means of its beak, and is likely to receive some hurt from the poisonous verdigris that is sure to make its appearance sooner or later on brass wire. An occasional bath is very beneficial to the Parrot's health; and if the bird refuses to bathe, tepid water may be thrown over him with very good effect.

When proper precautions are taken, the Parrot is one of our hardiest cage-birds, and will live to a great age even in captivity. Some of these birds have been known to attain an age of sixty or seventy years, and one which was seen by Le Vaillant had attained the patriarchal age of ninety-three. At sixty its memory began to fail; and at sixty-five the moult became very irregular, and the tail changed to yellow. At ninety it was a very decrepid creature, almost blind and quite silent, having forgotten its former abundant stock of words.

A Gray Parrot belonging to one of my friends was, during the former part of its life, remarkable only for its large vocabulary of highly discreditable language, which it would insist upon using exactly when it ought to have been silent, but suddenly changed its nature and subsided into a tender and gentle foster-mother.

In the garden of its owner there were a number of standard rose-trees, around all of which was a circular wire fence covered with convolvuluses and honeysuckle. Within one of these fences a pair of goldfinches had made their nest, and were constantly fed by the inhabitants of the house, who all had a great love for beasts and birds, and took a delight in helping the little creatures under their charge; and, indeed, were deeply interested in animated nature generally. Polly soon remarked the constant visits to the rose-tree, and the donations of crumbs and seeds that were regularly given, and must follow so good an example. So she set

off to the spot; and after looking at the birds for a little while, went to her cage, brought a beakful of her sopped bread, and put it into the nest.

At last the young birds were hatched, much to Polly's delight; but she became so energetic in her demonstrations of attachment that she pushed herself fairly through the wire meshes, and terrified the parents so much that they flew away. Polly, seeing them deserted, took on herself the task of foster-mother, and was so attentive to her little charge that she refused to go back to her cage, but remained with the little birds by night as well as by day, feeding them carefully, and forcing them to open their beaks if they refused her attentions. When they were able to hop about they were very fond of getting on her back, where four of them would gravely sit, while the fifth, which was the youngest, or at all events the smallest, always preferred to perch on Polly's head.

With all these little ones on her back, Polly would very deliberately walk up and down the lawn, as if to give them exercise; and would sometimes vary her performance by rising into the air, thus setting the ten little wings in violent motion, and giving the birds a hard task to remain on her back. By degrees they became less fearful, and when she rose from the ground, they would leave her back and fly down. They were but ungrateful little creatures after all; for when they were fully fledged they flew away, and never came back again to their foster-mother.

Poor Polly was for some time in great trouble about the desertion of her foster-children, but soon consoled herself by taking care of another little brood. These belonged to a pair of hedge-sparrows, whose home had been broken up by the descent of some large bird, which was supposed to have been a hawk by the effects produced. Polly found the little birds in dire distress; and contrived in some ingenious manner to get them, one by one, on her back, and to fly with them to her cage. Here she established the little family; never entering the cage except for the purpose of attending to her young charge.

The oddest part of the matter was, that one of the parents survived, and Polly was seen to talk to her in the most absurd manner; mixing up her acquired vocabulary with that universal bird-language that seems to be common to all the feathered tribes, and plentifully interlarding her discourse with sundry profane expressions. At last the instinctive language conquered the human, and the two birds seemed to understand each other perfectly well. At that time Polly was supposed to be about eight or nine years old.

There is a rather general belief that only the male Parrot can talk, but this is merely a popular error. The female Parrot has often been known to be an excellent talker, and at the same time has proved her sex by the deposition of a solitary egg. As might be supposed, such eggs produce no young; but there are accredited instances where the Gray Parrot has bred in Europe. In Buffon's well-known work may be seen a notice of a pair of Parrots that bred regularly for five or six years, and brought up their young successfully. The place chosen for their incubation was a tub, partially filled with sawdust, and was probably selected because it bore some resemblance to the hollow trunk of a tree, which is the usual nesting-place of the Parrots.

The general color of this bird is a very pure ashen-gray, except the tail, which is deep scarlet.

Two species of Green Parrot are tolerably common, the one being the FESTIVE GREEN PARROT, and the other the Amazon Green Parrot.

The former bird is a much larger and altogether finer species than the latter, often measuring sixteen inches in length. It is found in various parts of South America, such as Guiana, Cayenne, and the Brazils, and is very plentiful along the banks of the Amazon. It is a forest-loving bird, frequenting the depths of the vast wooded tracts which cover that country with their wonderful luxuriance, and being seldom seen beyond their outskirts. Being of an affectionate nature and easily tamed, it is in great favor as a cage-bird, and can readily be taught to pronounce words or even sentences.

The general color of this Parrot is bright green. On the top of the head and behind the eyes the feathers are rather pale cobalt-blue, and a deeper tint of blue is also seen on the outer

webs of the primary and secondary feathers of the wings, their interior webs being dark greenish-black. The lower part of the back and the upper tail-coverts are deep crimson-red, and the short, square tail is green, except the outermost feathers, which are edged with blue. On all the tail-feathers, except the central, there is a spot of pale red near the base. The bill is large and flesh-colored.

THE AMAZON GREEN PARROT is the species most commonly seen. It is a handsome bird, and is even a better conversationalist than the last-mentioned species. Like the Festive Parrot, it is a native of Southern America, and especially frequents the banks of the Amazon. It is not, however, so retiring in its habits as that bird, and will often leave the woods for the sake of preying upon the orange plantations, among which it works great havoc. Its nest is made in the decayed trunks of trees.

As a general fact, it is not so apt at learning and repeating phrases as the Gray Parrot, but I have known more than one instance where its powers of speech could hardly be exceeded, and very seldom rivalled. One of these birds which used to live in a little garden into which my window looked, was, on our first entrance into the house, the cause of much perplexity to ourselves and the servants. The nursery-maid's name was Sarah, and the unfortunate girl was continually running up and down stairs, fancying herself called by one of the children in distress. The voice of the Parrot was just that of a child, and it would call Sarah in every imaginable tone, varying from a mere enunciation of the name, as if in conversation, to angry remonstrances, petulant peevishness, or sudden terror.

Even after we had been well accustomed to the bird, we were often startled by the sharp cry of "Sarah! Sa-rah, Sa . . . ráh!" Presently it would cry, "Sarah, lay the cloth;" and after a while, "Sarah, why *don't* you lay the cloth?" always contriving to get the name of that domestic into its sentences.

The end of the poor bird was rather tragic. It was the property of a very irritable master, from whom the angry cries for Sarah were probably learned. He was very fond of his Parrot, but one day, in playing with her, he teased her so far beyond her patience, that she bit his finger; whereupon, in a fit of passion, he seized her by the neck and dashed her on the ground so hard, that she died on the spot.

From the Festive Parrot it may easily be distinguished, not only for its lesser size, it being barely twelve inches in length, but by the different arrangement of the coloring. The whole of the cheeks, chin, and the angles at the base of the bill are yellow, the forehead is deep blue-purple, and the feathers of the back of the head and nape of the neck are green, edged with



AMAZON GREEN PARROT.—*Chrysotis amazonica*.

black. When the bird is angry, it raises these feathers like a crest. The plumage of the body both above and below is rich green. The tail-feathers are beautifully marked with green, yellow, and red, and the primary feathers of the wings are tinged with green of various qualities, azure, deep brownish red and black.

LOVE-BIRDS AND COCKATOOS.

THE Love-birds derive their name from the great fondness which they display for others of their own species, and the manner in which they always sit close to each other while perched, each trying to snuggle as closely as possible among the soft feathers of its neighbor. They are all little birds, and among the smallest of these is the SWINDERN'S LOVE-BIRD, which measures barely six inches in length.

It is a rather scarce bird, but deserves notice on account of its very small dimensions, and its beautiful plumage. Like others of its kind, it is very fond of society, and unless furnished with a companion is very apt to droop, refuse nourishment, and die. Its habits in a wild state are not precisely known, as it is a bird of rare occurrence, and not easily to be watched.

The head of this species is light grass-green; round the back of the neck runs a black collar, and the chest, together with a band round the neck, just below the black collar, is yellow with a greenish cast. The general color of the body is the same grass-green as that of the head, except the upper tail-coverts, which are deep, rich azure. The short and rounded tail is beautifully and richly colored, the two central feathers being green, and the others bright scarlet for the first half of their length, then banded with a warm bar of black, and the tips green. The bill is black, and of a stronger make than is usually the case with the Love-birds. The legs and feet are grayish-black.

THE Cockatoos are very familiar birds, as several species are common inhabitants of our aviaries, where they create much amusement by their grotesque movements, their exceeding love of approbation, and their repeated mention of their own name. Wherever two or three of these birds are found in the same apartment, however silent they may be when left alone, the presence of a visitor excites them to immediate conversation, and the air resounds with "Cockatoo!" "Pretty Cocky!" in all directions, diversified with an occasional yell, if the utterer be not immediately noticed.

They are confined to the Eastern Archipelago and Australia, in which latter country a considerable number of large and splendid species are found. The nesting-place of the Cockatoos is always in the holes of decaying trees, and by means of their very powerful beaks, they tear away the wood until they have augered the hollow to their liking. Their food consists almost wholly of fruit and seeds, and they are often very great pests to the agriculturist, settling in large flocks upon the fields of maize and corn, and devouring the ripened ears or disinterring the newly sown seeds with hearty good-will. The wrath of the farmer is naturally aroused by these frequent raids, and the Cockatoos perish annually in great numbers from the constant persecution to which they are subjected, their nests being destroyed, and themselves shot and trapped.

To those, however, who own no land, and are anxious about no crops, a flock of Cockatoos is a most beautiful and welcome sight, as they flit among the heavy-leaved trees of the Australian forest, their pinky-white plumage relieved against the dark masses of umbrageous shade, as they appear and vanish among the branches like the bright visions of a dream.

THE first of the Cockatoos which will be noticed in these pages is the GOLIATH ARATOO, a striking and very remarkable bird.

The generic name, "*microglossum*," which is given to this creature, is of Greek origin, and signifies "little-tongue," that member being very curiously formed. In the generality of the Parrot tribe the tongue is thick and fleshy, but in the Aratoo it is long, tubular, and extensile. The powerful bill is also of a rather unusual form, the upper mandible being very

large, sharply curved, and having its cutting edges two-toothed, while the lower mandible is comparatively small, and only furnished with a single tooth.

It is a native of New Guinea and the neighboring islands, and is not a very common bird, although specimens may be found in several museums. The peculiar formation of the tongue and beak would lead the observer to suppose that its habits must be different from those of ordinary Cockatoos; but as little or nothing is known of its mode of life in a wild state, the precise use of these organs is rather problematical.

In size, this bird is one of the largest of the Parrot tribe, being equal to and in some cases exceeding that of the great macaws, although the absence of the long tail renders it a less conspicuous bird. The general color of this species is deep black, with a greenish gloss, caused chiefly by the large amount of whitish powder which is secreted in certain imperfect quills, and thence scattered among the feathers, giving them a kind of "bloom," like that of the plum or grape.

This substance is found very largely in most of the Parrot tribe, and I well remember getting my coat powdered like that of a miller from playing with a great white Cockatoo. Many other birds, such as the vultures, possess this curious

powdery substance, whose office is rather doubtful. The powder is produced from the formative substance of the quill, which, instead of being developed into shaft and web, as in the case of the perfect quills, dries up and is then thrown off in a dusty form. The imperfect quill-feathers can generally be seen intermixed with the rest of the plumage when the Cockatoo bends down its head or plumes itself, and the white substance may be seen in the open ends of the imperfect quills, or lying thickly about them. In the case of the vultures it is thought to be given for the purpose of keeping their skin and plumage undefiled by the putrid animal substances on which those unclean and useful birds feed, but as it is found in equal plenty on the Cockatoos, than whom no cleaner feeding or more fastidious birds exist, it is evident that it must serve some purpose that is common to these two dissimilar species. Very little structure is found in this dust when placed under the microscope, but with the aid of the polarizer I have made out several well-marked hexagonal cells.

The green-black hue extends over the whole of the plumage, but around the eye is a large naked space of skin, red in color, and covered with wrinkles. The head is ornamented with a large and curiously formed crest, which is composed of a number of single feathers, each being long, narrow, and the web rather scanty. The color of the crest is rather grayer than the remainder of the plumage, probably on account of its less massive construction, and its freedom from the white powdery dust which has just been described. In general the crest lies



GOLIATH ARATOO.—*Microglossus aterrimus*.

along the top of the head, and merely exhibits the tips of its feathers projecting over the neck; but when the bird is excited by anger or pleasure, it can erect the crest as well as the common Cockatoo. Some naturalists think that there are two species of Aratoo, the larger being distinguished by the title of *M. Goliath*, and the smaller called by the name of *M. atërrimum*, but the general opinion leans in favor of a single species and two varieties.

Two species of Cockatoo differ from each other in the color of their crests.

The first of these is the GREAT WHITE COCKATOO, a remarkably handsome bird, especially when excited. In size it is rather a large bird, equalling a common fowl in dimensions, and assuming a much larger form when it ruffles up its feathers when under the influence of anger. Many of these birds are admirable talkers, and their voice is peculiarly full and loud.



GREAT WHITE COCKATOO.—*Ptilonopus moluccensis*.

A Great White Cockatoo which I lately saw, was rather celebrated for his powers of conversation; but as he was moulting, his vocabulary was silenced for the time, and he sat in a very disconsolate manner on his perch, looking as if he had fallen into a puddle and not had time to arrange his plumage. All the breast and fore parts of the body were quite bare of feathers, and even the beautiful crest had a sodden and woe-begone look. By dint, however, of talking to the bird, and rubbing his head, I induced him to favor us with a few words, which were given in a voice as full and rounded as that of a strong-voiced man accustomed to talk to deaf people.

Presently we were startled with a deafening laugh, not unlike that of the hyena, but even louder and more weird-like. On turning round, I saw the Cockatoo suddenly transformed into a totally different bird, his whole frame literally blazing with excitement, his crest flung

forward to the fullest extent, and repeatedly spread and closed like the fan of an angry Spanish lady, every feather standing on end and his eyes sparkling with fury, while he volleyed forth the sounds which had so startled us. The cause of this excitement was to be found in the persons of two children, who had come to look at the bird, and who by some means had excited his ire. He always objected to children, probably with good reason, and being naturally irritable from the effect of moulting, his temper was aroused by the presence of the objects of his dislike.

The plumage of this species is white with a very slight roseate tinge, and the crest is white.

THE species of Cockatoo which is most common is the SULPHUR-CRESTED COCKATOO. It may readily be distinguished from the preceding bird by the bright yellow color of its crest and its more pointed form.

This bird is an inhabitant of different parts of Australia, and is especially common in Van Diemen's Land, where it may be found in flocks of a thousand in number. Owing to the ease with which it is obtained, it is frequently brought to England, and is held in much estimation as a pet.

A Cockatoo which I have lately seen, a young bird, displays admirably many peculiarities of the Cockatoo nature.

As yet it is not a very accomplished linguist, although it can repeat many words with much fidelity. It certainly has some notion of the meaning attached to certain words, as it can distinguish between the various members of the family, and when they enter the room will frequently utter their name. Sometimes it will act in the same manner when they leave the room. It can laugh merrily, but in rather too loud a tone for sensitive ears, and promises well for further accomplishments. Like others of the parrot tribe, it rejoices greatly in exercising its sharp beak, and is very fond of biting to pieces every bit of wood that may come in its way.

Empty cotton-reels are favorite toys, and it watches the gradual diminution of the thread with great interest, knowing that it is sure to have the wooden reel after the thread has been used. When the reel is placed on the outside of the cage the bird descends from its perch, pushes one of its feet through the wires and with extended toes feels in every direction for its toy. When the position of the coveted article is found, the bird grasps it with its feet, draws it through the wires, and bites it to pieces. Many times it has been known to split a reel with a single bite. Sometimes its owners give it one of those flat wooden discs on which silk-ribbon has been wound, and in such cases it always takes care to turn the disc edgeways before attempting to bring it through the wires.

So powerful is its beak that it can break up the shell of a periwinkle, or even a whelk, and with its curved beak peck out the inhabitant. In a similar manner it will crack nuts to pieces, and extract the kernel; but seems to do so merely for the pleasure of exercising its beak, as it generally allows the kernel to fall on the floor and contents itself with breaking the shell into many little pieces.

When I saw it, the plumage was in very fine order, and the crest with its double fan of bright yellow feathers had a remarkably fine effect as the bird ruffled up its plumage, erected the crest, and began bowing and crying "Pretty Cocky!" in a very excited state of mind.

Although its beak is so powerful, it can climb up the hands or face of any one whom it knows without doing any damage, whereas another Cockatoo of my acquaintance once inflicted unwitting but painful damage on my finger, as it lowered itself from my hand to its perch. I suppose that the bird found the substance of the finger yielding under the pressure of its beak, and fearful lest it should fall, gripped the finger in hope of saving itself, thereby inflicting a rather severe wound, and bruising the surrounding parts to such an extent that the whole finger swelled greatly, and for nearly a week could not be used.

The Cockatoo seems to court notice even more than the parrot, and will employ various ingenious manœuvres in order to attract attention to its perfections. They are mostly good.

tempered birds, seldom trying to bite unless they have been teased, and even in that case they generally give fair notice of their belligerent intentions by yelling loudly with anger, and spreading their yellow crests in defiance of their enemy.

The Cockatoo evidently possesses some sense of humor, particularly of that kind which is popularly known as practical joking. A lady had once shown some timidity in approaching a tame Cockatoo, and was evidently afraid of its beak. The bird thought that it was a great joke to frighten any one so much bigger than itself, and whenever the lady came near its perch it would set up its feathers, yell, and make believe to attack her, merely for the pleasure of hearing her scream and seeing her run away.

In its own country the Cockatoo is anything but a favorite, on account of its devastation among the crops. In treating of this bird, Mr. Gould writes as follows: "As may be readily imagined, this bird is not upon favorable terms with the agriculturist, upon whose fields of newly sown grain and ripening maize it commits the greatest devastation. It is consequently hunted and shot down wherever it is found, a circumstance which tends much to lessen its numbers. It is still, however, very abundant, moving about in flocks varying from a hundred to a thousand in number, and evinces a decided preference for the open plains and cleared lands, rather than for the dense bushes near the coast.

"Except when feeding or reposing on the trees after a repast, the presence of a flock, if not seen, is sure to be indicated by their horrid, screaming notes, the discordance of which may be slightly conceived by those who have heard the peculiarly loud, piercing, and grating scream of the bird in captivity; always remembering the immense increase of the din occasioned by the large number of the birds uttering their disagreeable notes at the same moment."

The color of this Cockatoo is white, with the exception of the crest, which is of a bright sulphur-yellow, and the under surface of the wings and the basal portions of the inner webs of the tail-feathers, which are of the same color, but much paler in hue. The total length of this species is about eighteen inches.

THE remarkably handsome bird which is represented on page 401 is a native of Australia. It is called by several names, such as the TRICOLOR CRESTED COCKATOO, and the PINK COCKATOO, by which latter name it is known to the colonists. The title of LEADBEATER'S COCKATOO was given to the bird in honor of the well-known naturalist, who possessed the first specimen brought to Europe.

It is not so noisy as the common species, and may possibly prove a favorite inhabitant of our aviaries, its soft, blush-white plumage and splendid crest well meriting the attention of bird-fanciers. The crest is remarkable for its great development, and for the manner in which the bird can raise it like a fan over its head, or depress it upon the back of its neck at will. In either case it has a very fine effect, and especially so when it is elevated, and the bird is excited with anger or pleasure.

The general color of this bird is white, with a slight pinkish flush. Round the base of the beak runs a very narrow crimson line, and the feathers of the crest are long and pointed, each feather being crimson at the base, then broadly barred with golden yellow, then with crimson, and the remainder is white. The neck, breast, flanks, and under tail-coverts are deeply stained with crimson, and the under surface of the wing is deep crimson-red. The beak is pale grayish-white, the eyes brown, and the feet and legs dark gray, each scale being edged with a lighter tint. In size it is rather superior to the common white Cockatoo.

A VERY singular form of Cockatoo is that which is known as the PHILIP ISLAND, or the LONG-BILLED PARROT.

This bird is only found on the little island from which it derives its name. It may probably become extinct at no distant period, as its singularly shaped beak renders it an object of attraction to those who get their living by supplying the dealers with skins, and various objects of natural history; and its disposition is so gentle and docile, that it readily accommodates itself to captivity. Philip's Island is only five miles in extent; and it is a very remarkable fact, that this Long-billed Parrot is never found even in Norfolk Island, though hardly four miles distant.

The late CHARLES DARWIN writes:—"The illustrations are the best I ever saw in any work. I find it superfluous to enter here into particulars, as I already, in the 'Descent of Man,' have well known and openly confessed how much I have profited by Mr. Brehm's book, and how highly I esteem it."
 Sir JOHN LUNN writes:—"You have, I think, done good service in publishing them. They are certainly very admirable."
 W. B. CARPENTER, M.D., LL.D., writes:—"I can quite endorse the favorable opinions already given by distinguished zoologists as to the high character of the illustrations generally."

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WE have concluded to submit for public patronage a work with the above title, being a series of exquisite Engravings representing the ANIMAL WORLD, executed with great scientific accuracy, and accompanied by full Descriptive Text, written in popular terms, so as to delight and instruct the people. Anyone who has considered the subject must be at a loss to understand why an ILLUSTRATED NATURAL HISTORY, comprehensive and at the same time popular, has not before this been published in this country. Indeed any lover of animals who has visited the great museums and zoological gardens and has had access to books of engravings in the public libraries, could not fail to remark the wealth of material in existence devoted to this subject. Being confirmed in our conviction of the desirability of such a work, we laid under contribution the best existing authorities for the production of most perfect representations of all the more important living creatures, and among the artists whose delineations will delight the reader, we may mention Harrison Weir, Wolf, Coleman, Fr. Specht, and Mutzel. By far the majority of the engravings in these volumes are from drawings made from the *living* animals, many at the Zoological Society's Gardens in London, England.

We purpose that our patrons shall be aided and interested in their study by such an array of pictures as has never before embellished any Natural History. In numerous instances the engraving is printed in oil-colors, and this portion of the illustrations has been taken charge of by Messrs. L. Prang & Co., of Boston, who we believe rank foremost for high artistic results in this department of printing. These Oleographs were copied under the superintendence of Mr. Prang from the renowned "Tafeln" of "Brehm's Thierleben," so that they may be declared perfectly reliable.

We sought competent advice from various sources as to the most suitable text that should accompany this panorama of handsome Engravings. It was found impossible to embody all the present ideas of naturalists in a single work like this on account of the rapid advances and constant changes in their knowledge of, and habits of thought respecting, the Animal World. And it seemed to us correct that the true object of Zoology is not to arrange, to number, and to ticket animals in a formal inventory, but to inquire into their life-nature, and not simply to investigate the lifeless organism.

What do we know of "Man" from the dissecting-room? Is it not Man, the warrior, the statesman, the poet, etc., that we are interested in? With all veneration which attaches itself to those who are the accredited possessors of abstruse learning, their inordinate use of phraseology detracts too much, we fear, from the fascination that the study of the Animal World would otherwise yield, and as we are not content to have our work restricted to a favored few, we thought the task placed in our hands to be to keep the work free from a repellant vocabulary of conventional technicalities. Our endeavor has been to find an author whose work would be noted for its fund of anecdote and vitality rather than for merely anatomical and scientific presentation, and we arrived at the conclusion that we could not do better than avail ourselves of the Rev. J. G. Wood's comprehensive work—a work most popularly approved by speakers of the English language. It would be superfluous to say one word concerning the standard character of his book, from the pages of which old and young at the other side of the Atlantic have obtained so much instruction and rational amusement. Avoiding the lengthened dissertations and minute classifications of specialists, he presents to his readers in popular terms a complete treatise on the Animal Kingdom of all climes and countries. The one objection that could be urged against it was, that animal life in America might be treated more fully and American forms given more consideration. In order to obviate this drawback and to do full justice to the creatures of our own country, we secured the aid of Dr. J. B. HOLDER, of the American Museum of Natural History in New York, an undoubted American authority, who has adapted Wood's work to American wants and given prominence to American forms of Animal life.

The splendid work on Rodentia, by Allen, Coues, and others, will be fully consulted. The valuable work on North American Birds, by Baird, Brewer, and Ridgway, will be the guide in the treatment of birds. The late arrangement of the classification and nomenclature of North American Birds, by Mr. Ridgway, and the Committee on that subject of the Ornithologists' Union, will be utilized in full. The arrangement of Mammals will be after the latest classification by Professor Flower, of the Zoological Society of London. So that this will be the first popular Natural History worthy of the name that has made its appearance here, which gives due and full recognition to the animate world surrounding us.

Terms of Publication.

The extent of the work will be 68 parts of 28 pages, at the price of 25 cents each. The entire publication will contain 34 Oleographs and 68 Full Page Engravings on Wood, besides many hundreds of exquisite Illustrations interspersed through the text. The parts will be issued every two weeks, and are payable only as delivered. No subscriber's name will be received for less than the entire work, and anyone removing, or not regularly supplied, will please address the Publisher by mail.

N. E.

SELMAR HESS, Publisher, New York.

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Animate Creation

A popular edition
of the

Standard
Natural
History

"Our
Living
World"



Selmar Hess,
Publisher
New York

Its favorite resorts are among rocky ground interspersed with tall trees, and its food consists mostly of long and succulent vegetable substances. The blossoms of the white Hibiscus afford it a plentiful supply of food, and in order to enable it to obtain the sweet juices of



LEADBEATER'S COCKATOO.—*Cacatua leadbeateri*.

the flowers, the tongue is furnished with a long, narrow, horny scoop at the under side of the extremity, not very unlike the human nail. As earth has often been found upon the long upper mandible, the bird is believed to seek some portion of its food in the ground, and to dig up with its pick-axe of a bill the ground nuts and other subterraneous vegetation. This opinion

is strengthened by the fact that another species of Parrot belonging to the same country is known to seek its food by digging.



LONG-BILLED PARROT—*Nestor productus*; and BLACK COCKATOO—*Calyptorhynchus Banksi*.

The hard and strong fruits which are so favored by other Parrots, are rejected by this species, whose long bill does not possess the great power needed for cracking the shells. In captivity it has been known to feed upon various soft leaves, such as lettuce and cabbage, and displays a decided predilection for ripe fruits, cream, and butter.



NESTOR-PARROTS.

While on the ground its mode of progression is not the ungainly waddle generally employed by the Parrot tribe, but is accomplished by hopping something after the fashion of the rooks, the wings aiding in each hop. One species of this genus has been known to imitate the human voice with much accuracy. This is the Southern Nestor, or the Kaka of the natives (*Nestor hypopólius*). The voice of the Long-billed Parrot is harsh, loud, and very disagreeable, and is said to resemble the continual barking of a hoarse-voiced, ill-tempered cur. While ranging among the trees, these birds fill the woods with their dissonant, quacking barks. The eggs of this species are white, and, as is generally the case with the Parrots, are laid in the hollow of a decaying tree.

The birds which belong to the genus Nestor may at once be known by their extraordinarily long upper mandibles, which curve far over the lower, and remind the observer of the overgrown tooth so common in the rat, rabbit, and other rodent animals. This remarkable structure is very probably for the purpose of enabling the bird to scoop roots and other vegetable substances out of the earth. The length, curve, and shape of the upper mandible differ in the various species. Another peculiarity is that the tips of the tail-feathers are partially denuded of their webs, leaving the shaft to project slightly beyond the feathered portion. Some persons suppose the Long-billed Parrots to form a link between the Parrots and the Cockatoos.

Neither of these birds are remarkable for brilliancy of plumage, the prevailing tints being brown and gray, with a little red and yellow here and there. The Philip's Island Parrot is dark brown on the upper surface of the body, but takes a grayish hue on the head and back of the neck. Each feather of the upper surface is edged with a deeper tinge, so that the otherwise uniform gray and brown is agreeably mottled. The cheeks, throat, and breast are yellow, warming into orange on the face. The inner surface of the shoulders is olive-yellow, and the abdomen and both tail-coverts are deep orange-red. The tail is moderately long, and squared at the extremity. The feathers are crossed at their base by bands of orange-yellow and brown, and the under surfaces of the inner webs are brown, mingled with dusky red. The feet are dark blackish brown, and the long bill is uniformly of a brownish tint. The total length of the adult bird is about fifteen inches.



HELMET COCKATOO.—*Calyptorhynchus galeatus*.

THE HELMET COCKATOO is a good representative of a very curious genus of Cockatoos resident in Australia.

The plumage of these birds, instead of being white or roseate as in the two previous Cockatoos, is always of a dark color, and frequently dyed with the richest hues. About six species belong to this genus, and they all seem to be wild and fierce birds, capable of using

their tremendously powerful beaks with great effect. Their crests are not formed like those of the common Cockatoo, and the tails are larger and more rounded.

The Helmet Cockatoo is only found in New South Wales, inhabiting the vast brush district of that land. Its food is mostly of a vegetable nature, consisting chiefly of the seeds of the *Banksia*; but the bird will also eat the large and fat grubs of different insects, mostly of a coleopterous nature, which it digs out of the trunks of trees with its strong bill.

It is not seen in such large flocks as the white Cockatoo, being generally in pairs, although little companies of six or eight in number are occasionally met in the bushes. Being a particularly wild and cautious bird, it is not easily approached by a stranger, except when feeding, at which time it is so occupied that a cautious sportsman may creep within gunshot. The native, however, unencumbered with raiment, and caring nothing for his time, can glide through the bushes noiselessly, and bring down the bird with a well-aimed stick.

The flight of this handsome bird is rather heavy, the wings flapping laboriously, and the progress being rather slow. It seldom mounts to any great height, and as a general fact only flies from the top of one tree to another. The eggs are generally two and sometimes three in number, and are laid in the hollow "spout" of a green tree, without any particular nest.

The chin of the adult male is deep rich black with a green gloss. A broad vermilion band crosses the whole of the tail, with the exception of the two central feathers, and the external webs of the outside feathers. The female is also greenish black, but her plumage is variegated with numerous spots and bars of pale yellow.

THERE are many other species of Australian Cockatoos, which cannot be mentioned in these pages. The native mode of hunting Cockatoos is so curious, and displays so well the character of the birds, that it must be given in the words of the writer, Captain Grey :—

"Perhaps as fine a sight as can be seen in the whole circle of native sports, is the killing Cockatoos with the kiley, or boomerang. A native perceives a large flight of Cockatoos in a forest which encircles a lagoon; the expanse of water affords an open, clear space above it, unencumbered with trees, but which raise their gigantic forms all around, more vigorous in their growth from the damp soil in which they flourish. In their leafy summits sit a countless number of Cockatoos, screaming and flying from tree to tree, as they make their arrangements for a night's sound sleep.

"The native throws aside his cloak, so that he may not have even this slight covering to impede his motions, draws his kiley from his belt, and with a noiseless, elastic step, approaches the lagoon, creeping from tree to tree, and from bush to bush, and disturbing the birds as little as possible. Their sentinels, however, take the alarm, the Cockatoos farthest from the water fly to the trees near its edge, and thus they keep concentrating their force as the native advances; they are aware that danger is at hand, but are ignorant of its nature. At length the pursuer almost reaches the edge of the water, and the scared Cockatoos, with wild cries, spring into the air; at the same instant the native raises his right hand high over his shoulder, and, bounding forward with his utmost speed, to give impetus to his blow, the kiley quits his hand as if it would strike the water; but when it has almost touched the unruffled surface of the lake, it spins upwards with inconceivable velocity, and with the strangest contortions.

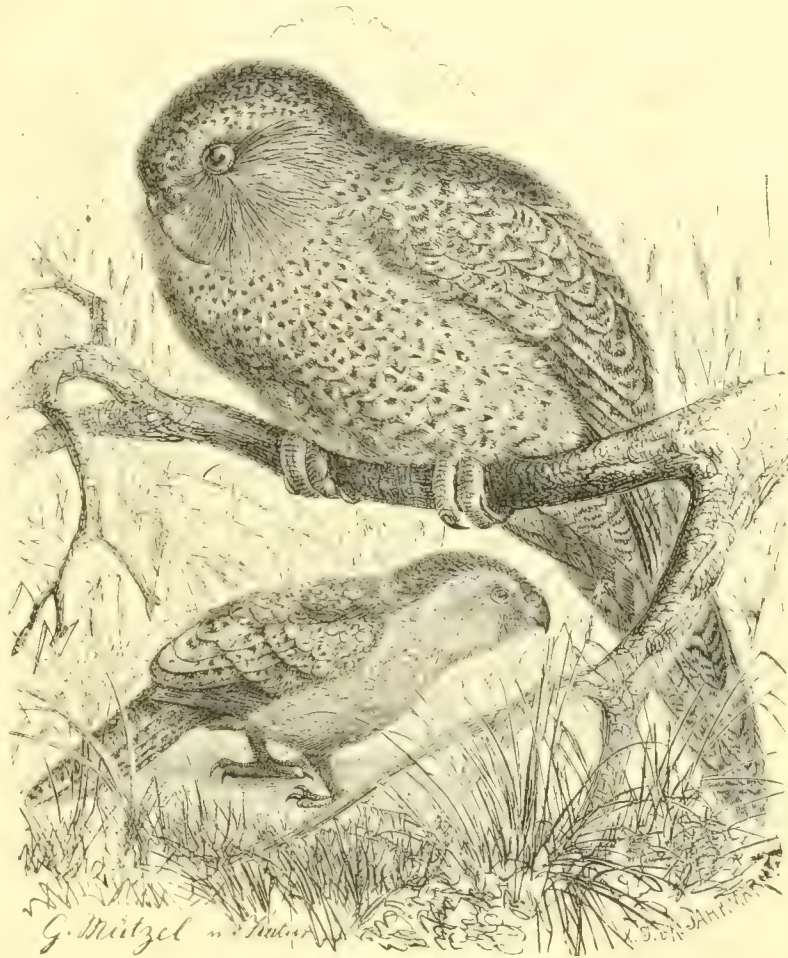
"In vain the terrified Cockatoos strive to avoid it; it sweeps wildly and uncertainly through the air—and so eccentric are its motions, that it requires but a slight stretch of the imagination to fancy it endowed with life—and with fell swoops in rapid pursuit of the devoted birds, some of which are almost certain to be brought screaming to the earth. But the wily savage has not yet done with them. He avails himself of the extraordinary attachment which these birds have for one another, and fastening a wounded one to a tree, so that its cries may induce its companions to return, he watches his opportunity, by throwing his kiley or spear, to add another bird or two to the booty he has already obtained."

THE name given to the curious bird now before us is a very appropriate one, as the creature seems to partake equally of the natures of the Owl and the Parrot.

Even in its habits it has much of the Owl nature, being as strictly nocturnal as any of those birds. During the daytime it conceals itself in holes, under the stumps of trees, and similar localities, and seldom being seen except after sunset. The natives of New Zealand, where it is found, say that during the winter months the OWL PARROTS assemble together in great numbers, collecting themselves into certain large caverns, and that while arranging for their winter-quarters, and before dispersing for the summer, they become very noisy, and raise a deafening clamor.

The Owl Parrot is weak of wing and seldom trusts itself to the air, taking but a very short flight whenever it rises from the ground. Neither is it seen much in trees, preferring to inhabit the ground, and making regular paths to and from its nest, by means of which its habitation may be discovered by one who knows the habits of the bird. These tracks are about a foot in width, and so closely resemble the paths worn by the footsteps of human beings that they have been mistaken for such by travellers.

The food of this bird is mostly obtained on the ground, and consists of tender twigs, leaves, and roots, which it digs up with its curved bill, covering that useful organ with earth and mud. The eggs of the Owl Parrot are merely laid upon



OWL PARROT.—*Stringops habroptilus*.

some decaying wood in the same hollows wherein the bird sleeps during the day. Their number is two, although three are sometimes found. The breeding season commences in February. The natives distinguish this bird by the name of Kakapo.

It is a very large bird, nearly equalling the eagle owl in dimensions; and, like that bird, standing very upright on its legs. The general color of the plumage is darkish green profusely mottled with black, and sparingly dashed with yellow. Under the eye is a patch of yellow-green. The beak is long and curved, very like that of an owl, and it is nearly concealed by the stiff bristles with which it is surrounded, and many of which cross each other at the tips over the bill. The abdomen is green of a yellower hue than the upper parts of the body, crossed with a few very faint bars of a darker hue. The tail is also green, but marked with brown.

ACCORDING to some authors, the Aratoo, already described on a previous page, is closely connected with the very remarkable bird called *Presquet's Dasyptilus*.

As in the case of the previous species we find an example of a Parrot following the owl type in its form and many of its habits, we have here an instance of another Parrot bearing a

close resemblance to the diurnal predaceous birds. Indeed, from examining the Parrots and their habits, it is impossible not to perceive the analogy that exists between themselves and the birds of prey, many of which are far less formidably armed than the vegetable-feeding Parrots. Perhaps we may call the Parrots vegetarian raptores.

The rather long generic name of *Dasyptilus* which has been given to this bird is of Greek origin, signifying "Hairy-plumage," and is appropriated to the bird on account of the bristle-like feathers, which cover the head and neck, and the generally bristly character of the plumage. The beak is long, straight for a considerable portion of its length, and then curved suddenly downwards at the tip, just after the manner of the eagles. Indeed, if the head were removed from the body, nine persons out of ten would attribute it to one of the eagles. The lower mandible is, however, more like that of the Parrots, short, thick, and keeled. Around the eye there is a large patch of bare skin, and the bristly feathers of the head and neck very scantily protect those portions. The nostrils are round, and situated in the "cere" at the base of the beak.

The coloring of this bird is very simple. The general tint of the whole upper surface is black-green, like that of the Aratoo, excepting the greater wing-coverts, and the upper tail-coverts, which are of a rich crimson. The abdomen and thighs are also crimson, but with a perceptible vermilion tint. The upper part of the breast and the neck are black, and a very slight white edging appears on some of the feathers. The tail is moderately long, rounded, and very firmly made. The total length of this bird is about twenty inches.

THE WOODPECKERS.

WE now take our leave of the Parrots, and come to a very interesting family of scansorial birds, known popularly as Woodpeckers, and scientifically as *Picidæ*.

There are many members of this large family, differing exceedingly in size, color, and form, but yet possessing a kind of family resemblance not easy to be described, but readily recognizable. For convenience of description modern zoologists have grouped the Woodpeckers into several sub-families, all of which will be represented in the following pages, and which are termed the *Capitoninæ* or Barbets, the *Picumminæ* or Piculets, the *Picinæ* or true Woodpeckers, the *Gecinæ* or Green Woodpeckers, the *Melanerpinæ* or Black Woodpeckers, and the *Colaptinæ* or Ground Woodpeckers.

OUR example of the first sub-family is the HAIR-BREASTED BARBET.

This is, perhaps, the most curious of all the Barbets, on account of the peculiarity from which it derives its name. The feathers of the breast are much stiffer than the others, and more sharply pointed, and the shafts of the lower breast-feathers are devoid of web, and project to the distance of nearly an inch from the rest of the plumage, looking as if a number of long curved bristles had been inserted among the plumage. All the Barbets possess strong and conical beaks, surrounded with bristles at the base, and their stiff tail-feathers enable them to support their bodies while they are perched upon the upright trunk of the tree on which they are seeking their insect food. They are all found in tropical climates, and the greater number, among which the present species may be included, are natives of Western Africa. In their habits they are said to be rather slow and sluggish birds, not possessed of the fiery vivacity which distinguishes the true Woodpeckers, and their food is not so wholly of an insect nature. The wings and tail are short, and all the species are of small dimensions.

The general color of this bird is brown on the upper parts of the body, spotted with sulphur-yellow, a round mark of that tint being found on the end of each feather. The head, chin, and part of the throat are black, and there is one white stripe behind the eye, and

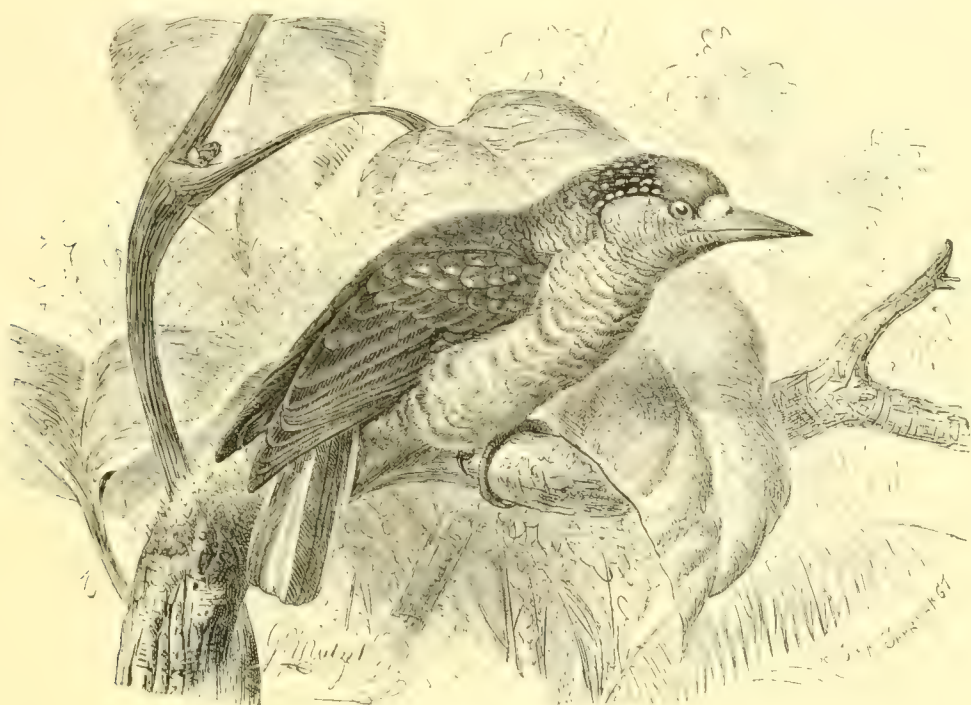


WOODPECKERS.

another running from the angle of the mouth down the neck. The quill-feathers of the wings are deep brown, edged with sulphur-yellow. The whole of the under surface is yellow with a green tinge, and is profusely spotted with black. The total length of this species rather exceeds seven inches.

THE Piculets seem to bear the same proportion to the Woodpeckers as the merlin to the eagle, being about the size of sparrows and more slenderly framed. Their bills are shorter in proportion than those of the true Woodpeckers, and are rather deeper than wide at the base. Their wings are short and rounded, and their tails are also short.

The PIGMY PICULET is a very pretty example of this little sub-family. It is a native of Southern America, and is generally found in the vast forests of that fertile land. It is a lively little creature, running quickly up the trunks of trees after the manner of the English



PIGMY PICULET.—*Picumnus minutus*.

creeper, but seldom appearing to use its tail in aid of its progress, or to seek its food on the tree-trunks in the usual Woodpecker fashion. In general it is seen among the branches, where it sits across the boughs when at rest, and hops quickly from one branch to another while searching after its food.

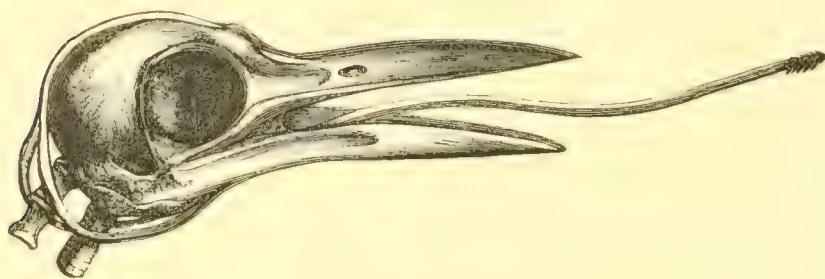
It is not a gregarious bird, being generally found either singly or in pairs. The nest of this species is made in hollow trees, and its eggs are only two in number.

This species is a remarkably pretty one, elegant in shape and delicately colored. The general color of the back and upper portions of the body is a very soft hair-brown, and the wings are also brown, but of a deeper hue. Over the back are scattered a few oval spots of a much lighter brown, each having a nearly black spot towards one end, and contrasting in a very pleasing manner with the delicate brown of the back. The tail is of the same dark brown as the wings, with the exception of the two central feathers, which are of a light fawn. The most striking portion of this bird is the top of the head, which is decorated with a bright scarlet crest-like crown, covered with velvety-black dots. The rest of the head and the back of the neck are jetty black, interspersed with white dots. The under surface of the body is pale brown variegated with the same curious spots as those of the back. In size this bird hardly exceeds a wren.

WE now arrive at the true Woodpeckers, several species of which bird are familiar from their frequent occurrence in this country.

As is well known, the name of Woodpecker is given to these birds from their habit of pecking among the decaying wood of trees in order to feed upon the insects that are found within. They also chip away the wood for the purpose of making the holes or tunnels wherein their eggs are deposited. In order to enable them to perform these duties, the structure of the Woodpecker is very curiously modified. The feet are made extremely powerful, and the claws are strong and sharply hooked, so that the bird can retain a firm hold of the tree to which it is clinging while it works away at the bark or wood with its bill. The tail, too, is furnished with very stiff and pointed feathers, which are pressed against the bark, and form a kind of support on which the bird can rest a large proportion of its weight. The breast-bone is not so prominent as in the generality of flying birds, in order to enable the Woodpecker to press its breast closely to the tree, and the beak is long, strong and sharp.

These modifications aid the bird in cutting away the wood, but there is yet a provision needful to render the Woodpecker capable of seizing the little insects on which it feeds, and



HEAD OF WOODPECKER.

which lurk in small holes and crannies into which the beak of the Woodpecker could not penetrate. This structure is shown by the accompanying sketch of a Woodpecker's head dissected. The tongue-bones or "hyoid" bones are greatly lengthened, and pass over the top of the head, being fastened in the skull

just above the right nostril. These long tendinous-looking bones are accompanied by a narrow strip of muscle by which they are moved.

The tongue is furnished at the tip with a long horny appendage covered with barbs and sharply pointed at the extremity, so that the bird is enabled to project this instrument to a considerable distance from the bill, transfix an insect, and draw it into the mouth. Those insects that are too small to be thus treated are captured by means of a glutinous liquid poured upon the tongue from certain glands within the mouth, and which cause the little insects to adhere to the weapon suddenly projected among them. This whole arrangement is clearly analogous to the tongue of the ant-eater, described in the volume on Mammalia. Some authors deny the transfixion.

THE GREAT SPOTTED WOODPECKER is also known by the names of Frenchpie and Woodpie.

Like the other Woodpeckers, it must be sought in the forests and woods rather than in orchards and gardens. Like other shy birds, however, it soon finds out where it may take up its abode unmolested, and will occasionally make its nest in some cultivated ground, where it has the instinctive assurance of safety, rather than entrust itself to the uncertain security of the forest.

In the woods frequented by these birds, which are often more plentiful than is generally known, the careful observer may watch their movements without difficulty, by taking a few preliminary precautions.

The rapid series of strokes on the bark, something like the sound of a watchman's rattle, will indicate the direction in which the bird is working; and when the intruding observer has drawn near the tree on which he suspects the Woodpecker to have settled, he should quietly sit or lie down, without moving. At first the bird will not be visible, for the Woodpeckers, like the squirrels, have a natural tact for keeping the tree-trunk or branch between themselves and the supposed enemy, and will not show themselves until they think that the danger has passed away.

Presently the Woodpecker may be seen coming very cautiously round the tree, peering here and there, to assure itself that the coast is clear, and then, after a few preliminary taps, will set vigorously to work. So rapidly do the blows follow each other, that the head of the bird seems to be vibrating on a spring, and the sound can only be described by the comparison already made, namely, a watchman's rattle. Chips and bark fly in every direction, and should the tree be an old one, whole heaps of bark will be discovered at the foot. By the aid of a small telescope, the tongue can be seen darted out occasionally, but the movement is so quick, that unless the attention of the observer be especially directed towards it, he will fail to notice it.

The Woodpecker has several modes of tapping the trees, which can be readily distinguished by a practised ear. First there is the preliminary tap and the rapid whirring strokes



WOODPECKERS. *Picus major, medius and minor.*

already described, when the bird is engaged in seeking its food. Then there is a curious kind of sound made by pushing its beak into a crack, and rattling it in such a manner against the wood, that the insects think their house is falling, and run out to escape the impending danger, just as worms come to the surface when the ground is agitated by a spade or fork. Lastly, there is a kind of drumming sound made by striking the bill against some hollow tree, and used together with the peculiar cry for the purpose of calling its mate.

Although the Woodpeckers were formerly much persecuted, under the idea that they killed the trees by pecking holes in them, they are most useful birds, cutting away the decaying wood, as a surgeon removes a gangrened spot, and eating the hosts of insects which encamp in dead or dying wood, and would soon bring the whole tree to the ground. They do not confine themselves to trees, but seek their food wherever they can find it, searching old

posts and rails, and especially delighting in those trees that are much infested with the green fly, or aphids, as the wood-ants swarm in such trees for the purpose of obtaining the "honey-dew," as it distils from the aphides, and then the Woodpeckers eat the ants. Those destructive creatures generally called wood-lice, and known to boys as "monkey-peas," are a favorite article of diet with the Woodpeckers, to whom our best thanks are therefore due.

But the Woodpeckers, although living mostly on insects, do not confine themselves wholly to that diet, but are very fond of fruits, always choosing the ripest. In some countries the forest-land forms so small a portion of the area, that the Woodpeckers are comparatively few, and can do little appreciable mischief to the gardens; but in other lands, such as many parts of America, they do very great damage, stripping the trees of their fruit, and the fields of their crops, to such an extent that they are annually shot by hundreds.

As is the case with all its congeners, the Great Spotted Woodpecker lays its eggs in the hollow of a tree.

The locality chosen for this purpose is carefully selected, and is a tunnel excavated, or at all events altered, by the bird for the special purpose of nidification. Before commencing the operation, the Woodpeckers always find out whether the tree is sound or rotten, and they can ascertain the latter fact, even through several layers of sound wood. When they have fixed upon a site for their domicile, they set determinately to work, and speedily cut out a circular tunnel just large enough to admit their bodies, but no larger. Sometimes this tunnel is tolerably straight, but it generally turns off in another direction.

At the bottom of the hole the female bird collects the little chips of decayed wood that have been cut off during the boring process, and deposits her eggs upon them without any attempt at nest-making. The eggs are generally five in number, but six have been taken from the nest of this species. The young are able to run about the tree some time before they can fly, and traverse the bark quite fearlessly, retiring to the hole and calling their parents whenever they want food.

Generally the nests of birds are kept scrupulously clean; but that of the Woodpecker is a sad exception to the rule, the amount of filth and potency of stench being quite beyond human endurance. The color of the eggs is white, and their surface glossy, and they are remarkable, when fresh, for some very faint and very narrow lines, which run longitudinally down the shell towards the small end.

The general color of this species is black and white, curiously disposed, with the exception of the back of the head, which is light scarlet, and contrasts strongly with the sober hues of the body. Taking the black to be the ground color, the white is thus arranged: The forehead and ear-coverts, a patch on each side of the neck, the scapularies, and part of the wing-coverts, several little squared spots on the wings, and large patches on the tail are pure white. The throat and the whole of the under surface are also white, but with a grayish cast, and the under tail-coverts are red. The total length of the adult male is rather more than nine inches. The female has no red on the head, and the young birds of the first year are remarkable for having the back of the head black and the top of the head red, often mixed with a few little black feathers.

THE DOWNY WOODPECKER derives its name from the strip of loose downy feathers which passes along its back. It is a native of America, and very plentiful in various parts of that country. Its habits are so well described by Wilson, that his own words will be the best comment on this pretty little bird:—

"About the middle of May the male and female look out for a suitable place for the reception of their eggs and young. An apple, pear, or cherry tree, often in the near neighborhood of the farm-house, is generally pitched upon for this purpose. The tree is minutely reconnoitered for several days previous to the operation, and the work is first begun by the male, who cuts out a hole in the solid wood as circular as if described with a pair of compasses. He is occasionally relieved by the female, both parties working with the most indefatigable diligence. The direction of the hole, if made in the body of the tree, is generally downwards by an angle of thirty or forty degrees for the distance of six or eight inches, and then straight down

for ten or twelve more ; within roomy, capacious, and as smooth as if polished by the cabinet maker ; but the entrance is judiciously left just so large as to admit the bodies of the owners.

“During this labor they regularly carry out the chips, often strewing them at a distance to prevent suspicion. This operation sometimes occupies the chief part of a week. Before she begins to lay the female often visits the place, passes in and out, examines every part of the exterior and interior with great attention, as every prudent tenant of a new house ought to do, and at length takes complete possession. The eggs are generally six, pure white, and laid in the smooth bottom of the cavity. The male occasionally supplies the female with food while she is sitting, and about the last week in June the young are perceived making their way up the tree, climbing with considerable dexterity.”

The same writer then proceeds to remark that the process of nest-making is not always permitted to go on without hindrance, for the impertinent little house-wren, who likes to build her nest in hollows, but who is not strong or large enough to scoop a habitation for herself, will often allow the Woodpeckers to make a nice deep hole, just fit for a wren's nest, and then drives them off and takes possession of the deserted domicile. One pair of Woodpeckers met with very hard treatment, being twice turned out of their house in one season, and the second time they were even forced to abandon one egg that had been laid.

The holes made by this Woodpecker in trees are very numerous, and have often led more observant orchard-owners to think the bird an enemy to their trees, and to kill it accordingly. Wilson has, however, completely exonerated the bird from the charge, and proved it to be a useful ally to man instead of a noxious foe. “Of all our Woodpeckers, none rid the apple-trees of so many vermin as this ; digging off the moss which the negligence of the proprietor had suffered to accumulate, and probing every crevice. In fact, the orchard is his favorite resort in all seasons ; and his industry is unequalled and almost incessant, which is more than can be said of any other species we have.

“In fall he is particularly fond of boring the apple-trees for insects, digging a circular hole through the bark, just sufficient to admit his bill ; after that a second, third, etc., in pretty regular horizontal circles round the body of the tree. These parallel circles of holes are often not more than an inch or an inch and a half apart, and sometimes so close together, that I have covered eight or ten of them at once with a dollar. From nearly the surface of the ground up to the first fork, and sometimes far beyond it, the whole bark of many apple-trees is perforated in this manner, so as to appear as if made by successive discharges of buckshot ; and our little Woodpecker, the subject of the present account, is the principal perpetrator of this supposed mischief. I say supposed, for, so far from these perforations of the bark being ruinous, they are not only harmless, but, I have good reason to believe, really beneficial to the health and fertility of the tree.

“In more than fifty orchards which I have myself carefully examined, those trees which were marked by the Woodpecker (for some trees they never touch, perhaps because not penetrated by insects) were uniformly the most thriving, and seemingly the most productive. Many of them were upwards of sixty years old, their trunks completely covered with holes, while the branches were broad, luxuriant, and loaded with fruit. Of decayed trees, more than three-fourths were untouched by the Woodpecker.”

Although a little bird—less than seven inches in length—it is a truly handsome one. The crown of the head is velvety black, its back deep scarlet, and there is a white streak over the eye. The back is black, but is divided by a lateral stripe of puffy or downy white feathers. The wings are black, spotted with white, and the tail is also variegated with the same tints. From the base of the beak a black streak runs down the neck. The sides of the neck, the throat, and the whole of the under parts of the body are white. The nostrils are thickly covered with small, bristly feathers, probably to protect them from the chips of wood struck off by the beak. The female is known by the grayish-white of the abdomen, and the absence of red upon its head.

ALTHOUGH not the largest of the Woodpecker tribe, the IVORY-BILLED WOODPECKER, of North America, is perhaps the handsomest and most striking in appearance.

This splendid bird is armed with a tremendous beak, long, powerful, sharp, and white as ivory, which can be used equally as an instrument for obtaining its food, or as a weapon for repelling the attacks of its enemies, and, in the latter point of view, is a truly formidable arm, as terrible to its enemies as the bayonet, to which it bears no little resemblance in general shape.

Few birds are more useful than the Ivory-billed Woodpecker, which wages continual war upon the myriad insects which undermine the bark of forest-trees, and saves the forest giants from falling a prey to their diminutive adversaries. In one season several thousand acres of huge pine-trees, from two to three feet in diameter, and many of them measuring one hundred and fifty feet in height, were destroyed by the larvæ of a little insect not bigger than a grain of rice. Besides this creature, there are large grubs and caterpillars that bore their way into the interior of trees, and are the pioneers of the destruction that afterwards follows.

When the Ivory-billed Woodpecker has been hard at work upon a tree, he leaves ample traces of his progress in the heaps of bark and wood chips which surround the tree, and which look, according to Wilson, as if a dozen axe-men had been working at the trunk. Strips of bark seven or eight inches in length are often struck off by a single blow, and the body of the tree is covered with great excavations that seem more like the work of steel tools than of a bird's beak. Yet these apparent damages are really useful to the tree, as the sound wood is allowed to remain in its place, performing its proper functions, while the decaying substances are scooped out in order that the bird may get at the grubs and beetles that make their home therein.

As in the case of all Woodpeckers, the beak is also employed in excavating the holes in which the eggs are laid. The following account of the nesting of this bird is given by Audubon :—

“The Ivory-billed Woodpecker nestles earlier in spring than any other species of its tribe. I have observed it boring a hole for that purpose in the beginning of March. The hole is, I believe, always made in the trunk of a live tree, generally of an ash or a hagberry, and is at a great height.

“The birds pay great regard to the particular situation of the tree, and the inclination of its trunk, first because they prefer retirement, and again, because they are anxious to secure the aperture against the access of water during beating rains. To prevent such a calamity, the hole is generally dug immediately under the juncture of a large branch with the trunk. It is first bored horizontally for a few inches, then directly downwards, and not in a spiral manner, as some people have imagined. According to circumstances, this cavity is more or less deep, being sometimes not more than ten inches, whilst at other times it reaches nearly three feet downwards into the core of the tree. I have been led to think these differences result from the more or less necessity under which the female may be of depositing her eggs, and again have thought that the older the Woodpecker is, the deeper does it make its hole. The average diameter of the different nests which I have examined was about seven inches within, although the entrance, which is perfectly round, is only just large enough to admit the bird.

“Both birds work most assiduously at this excavation, one waiting outside to encourage the other whilst it is engaged in digging, and when the latter is fatigued, taking its place. I have approached trees whilst these Woodpeckers were thus busily employed in forming their nest, and by resting my head against the bark could easily distinguish every blow given by the bird. I observed that in two instances, when the Woodpeckers saw me thus at the foot of the tree in which they were digging their nest, they abandoned it forever. For the first brood there are generally six eggs. They are deposited in a few chips at the bottom of the whole, and are of a pure white color. The young are seen creeping out of the hole about a fortnight before they venture to fly to any other tree. The second brood makes its appearance about the 15th of August.”

The courage and determination of the Ivory-billed Woodpecker is very great, and it will fight with its opponent in a most desperate manner. When wounded, it endeavors to reach the nearest tree, and to run up its trunk, and if intercepted will peck as fiercely at the hand of its pursuer as at the wood and bark, and is able to inflict severe injury with its sharp

powerful bill. On account of this bold and fiery disposition, the American Indians pay much honor to the bird, and are in the habit of carrying its head and bill among the numerous charms or "medicines" in which they delight, and which are supposed to transmit to the wearer the good qualities of the slain creature.

The voice of this Woodpecker is seldom uttered while the bird is on the wing, but is frequently heard as soon as the bird has alighted. It is a rather shrill and very loud tone, and can be heard at a great distance.



IVORY-BILLED WOODPECKER.—*Campephilus principalis*

The cry of the wounded bird is, according to Wilson, just like that of a hurt child. "The first place I observed this bird at, when on my way to the south, was about twelve miles north of Wilmington, in North Carolina. Having wounded it slightly in the wing, on being caught, it uttered a loudly reiterated and most piteous note, exactly resembling the violent crying of a young child, which terrified my horse so as nearly to have cost me my life.

"It was distressing to hear it. I carried it with me in the chair, under cover, to Wilmington. In passing through the streets, its affecting cries surprised every one within hearing, particularly the females, who hurried to the doors and windows with looks of alarm and anxiety. I drove on, and on arriving at the piazza of the hotel where I intended to put up, the landlord came forward, and a number of other persons who happened to be there, all equally alarmed at what they heard; this was greatly increased by my asking whether he could furnish me with accommodations for myself and my baby. The man looked blank and foolish,

while the others stared with still greater astonishment. After diverting myself for a minute or two at their expense, I drew my Woodpecker from under the cover, and a general laugh took place. I took him upstairs, and locked him up in my room, while I went to see my horse taken care of.

"In less than an hour I returned, and on opening the door, he set up the same distressing shout, which now appeared to proceed from grief that he had been discovered in his efforts at escape. He had mounted along the side of the window, nearly as high as the ceiling, a little below which he had begun to break through. The bed was covered with large pieces of plaster; the lath was exposed for at least fifteen inches square, and a hole large enough to admit the fist, open to the weather boards; so that in less than another hour he would certainly have succeeded in making his way through. I now tied a string round his leg, and fastening it to the table, again left him. I wished to preserve his life, and had gone off in search of suitable food for him. As I reascended the stairs, I heard him again hard at work, and on entering had the mortification to perceive that he had almost entirely ruined the mahogany table to which he was fastened, and on which he had wreaked his whole vengeance. While engaged in taking a drawing, he cut me severely in several places, and on the whole displayed such a noble and unconquerable spirit, that I was frequently tempted to restore him to his native woods. He lived with me nearly three days, but refused all sustenance, and I witnessed his death with regret."

The general color of this bird is black, glossed with green. The fore part of the head is black, and the remainder is covered with a beautiful scarlet crest, each feather being spotted towards the bottom with white, and taking a grayish ashen hue at the base. Of course these colors can only be seen when the crest is erected. From below the eye a white streak runs down the neck, and along the back, nearly to the insertion of the tail, and the secondaries, together with their coverts and the tips of some of the primaries, are also white, so that when the bird shuts its wings, its back appears wholly white. The tapering tail is black above, yellowish-white below, and each feather is singularly concave. The wings are also lined with yellowish-white. The bill is white as ivory, strong, fluted along its length, and nearly an inch broad at the base. The female is plumaged like the male, with the exception of the head, which is wholly black, without the beautiful scarlet crest. The total length of the Ivory-billed Woodpecker is about twenty inches.

Wilson says: "Nature seems to have designed for the Ivory-bill a distinguished characteristic in the superb carmine crest and bill of polished ivory with which she has ornamented him. His eye is brilliant and daring; and his whole frame so admirably adapted for his mode of life and method of procuring subsistence, as to impress on the mind of the examiner the most reverential ideas of the Creator. His manners also have a dignity in them superior to the common herd of Woodpeckers. Trees, shrubbery, fences, old bags, are alike interesting to these in their humble, indefatigable search for prey; but the royal hunter now before us scorns the humility of such situations, and seeks the most towering trees of the forest, seeming particularly attached to those prodigious cypress swamps whose crowded giant sons stretch their bare and blasted arms midway to the skies. In these almost inaccessible recesses, amid ruinous piles of impending timber, his trumpet-like notes and loud strokes resound through the solitary savage wilds, of which he seems the sole lord and inhabitant. Wherever he frequents he leaves numerous monuments of his industry behind him. We there see enormous pine-trees with cart-loads of bark lying around their roots, and chips of the trunk itself, in such quantities as to suggest the idea that half a dozen axe-men had been at work there the whole morning. The body of the tree is also disfigured with so numerous and such large excavations that one can hardly conceive it possible for the whole to be the work of one Woodpecker. With such strength, and an apparatus so powerful, what havoc might he not commit if numerous, on our most useful forest trees. And yet, with all these appearances, and much vulgar prejudice against him, it may fairly be questioned whether he is at all injurious; or, at least, whether his exertions do not contribute most powerfully to the protection of our timber. Examine closely the tree where he has been at work, and you will soon perceive that it is neither from motives of mischief nor amusement that he slices off the

bark or digs his way into the trunk, for the sound and healthy tree is the least object of his attention. The diseased, hastening to putrefaction, infested with insects, are his favorites. Ignorance and prejudice stubbornly persist in directing their indignation against the bird now before us, the constant and mortal enemy of those very vermin."

This bird is seldom seen above Virginia—its principal *habitat* being in the Gulf States. It is not migratory.

In the South it is called Logcock, and the Pileated Woodpecker is confounded with, or they are called respectively, Greater and Lesser Logcock.

Dr. Brewer says: "When wounded this bird immediately makes for the nearest tree and ascends it with great rapidity, until it reaches the top branches, when it squats and hides, generally with great effect. Whilst ascending it moves spirally around the tree, utters its loud *pait, pait*, at almost every hop, but becomes silent the moment it reaches a place where it conceives itself secure. They sometimes cling to the bark with their claws so firmly as to remain cramped to the spot several hours after death. They strike with great violence, and inflict severe wounds with both bill and claw."

THE PILEATED WOODPECKER (*Hylotomus pileatus*) is nearly as large as the Ivory-billed. He is the "great northern chief of his tribe," though his range extends from Canada to the Gulf of Mexico. In the high timber lands of Northern New York he is abundant. In Pennsylvania he is called the Black Woodcock; in the Southern States the Logcock.

Like the preceding species, he is eminently serviceable in removing noxious insects from the forest trees. He is not migratory, but braves the extremes of the colder regions and the tropics. It is rare to see more than two or three together.

The general color of his plumage is a dusky brownish-black; the head is ornamented with a conical cap of scarlet, and the scarlet moustaches proceed from the sides of the lower mandible. The eye is a bright golden color.

THE BANDED THREE-TOED WOODPECKER (*Picoides tridactylus*) is an extremely rare bird in the United States, and little is known of its habits. Its range is through the Arctic regions of America, and southwards in winter as far as Massachusetts. Mr. Welch, of Lynn, Massachusetts, took some specimens in the latter place. This is the most southern limit known for the species.

A variety is known as rather common in the Rocky Mountains.

THE commonest of the Woodpeckers is that which is generally known by the name of the GREEN WOODPECKER. It has, however, many popular titles, such as Rain-bird, Wood-spite, Hew-hole, and Wood-wall. This bird is a representative of the Gecinæ, or Green Woodpeckers.

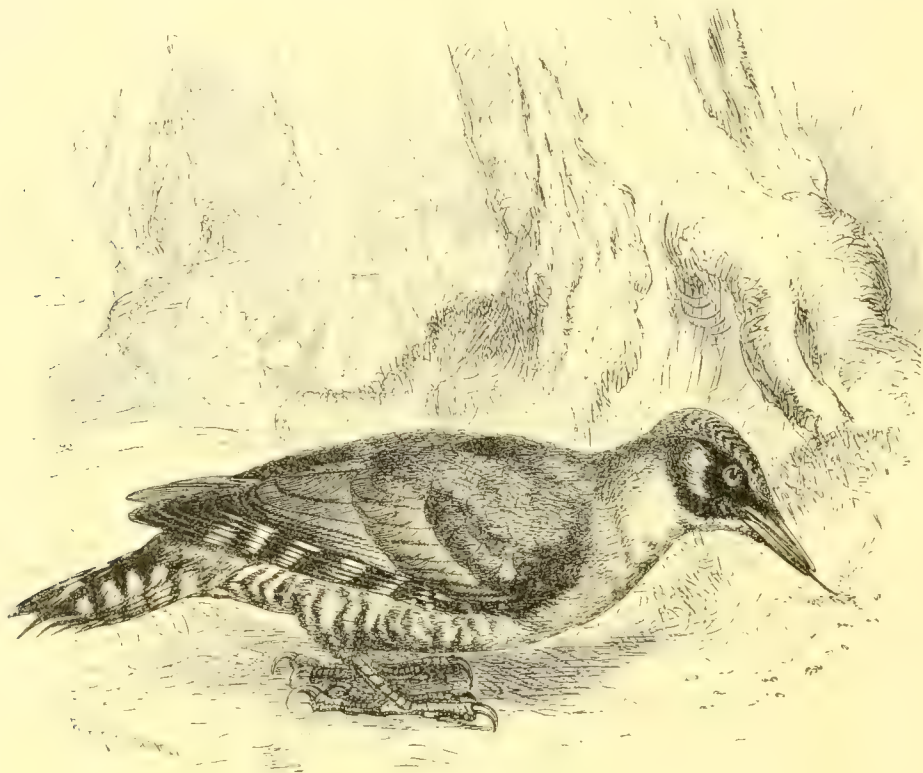
Although the Green Woodpecker is a haunter of woods and forests, it will sometimes leave those favored localities, and visit the neighborhood of man. The grounds near houses are rather favorite resorts of this pretty bird, and I once performed something of a cruel feat by flinging a brickbat at a Green Woodpecker, without the least idea of hitting it, and crushing its legs with the edge of the brick. I do not think I ever threw a stone at a bird afterwards, and though the event happened some years ago, I have never forgiven myself for it.

The name of Rain-bird has been given to this species because it becomes very vociferous at the approach of wet weather, and is, as Mr. Yarrell well observes, "a living barometer to good observers." Most birds, however, will answer the same purpose to those who know how and where to look for them. The other titles are equally appropriate, Wood-spite being clearly a corruption of the German term "specht." Hew-hole speaks for itself; and Wood-wall is an ancient name for the bird, occurring in the old English poets.

This species, although mostly found on trees, is a frequent visitor to the ground, where it finds an abundance of food. Ants' nests are said to form a great attraction to the Green Woodpecker, which feasts merrily at the expense of the insect community. During the autumn, it also lives on vegetable food, being especially fond of nuts, which it can crack without any difficulty by repeated strokes from its bill. The nest of this Woodpecker is, like that

of the other species, a mere heap of soft, decaying wood at the bottom of a tunnel dug by the birds, or adapted to their use from an already existing cavity.

The coloring of this species is very pretty. The top of the head is bright scarlet, and from the base of the beak starts a kind of moustache, black, with a scarlet centre. The whole of the upper surface is dark green, mixed with yellow, changing to sulphur-yellow on the upper tail-coverts. The primaries are grayish-black spotted with white, and the secondaries and tertials are green on their outer webs, and gray-black spotted with white on the inner. The stiff tail-feathers are grayish-black, variegated with some bars of a lighter hue; and the throat, chest, and all the under surface are ashen-green. The color of the beak is dark, horny black. The female may be known from her mate by the wholly black moustache, and the



GREEN WOODPECKER.—*Picus viridis*.

smaller ornament of scarlet on the head. In the young birds of both sexes, the scarlet of the head is mottled with black and yellow, the green feathers of the back are yellow at their tips, and the under surface is dull brownish-white, with streaks and bars of grayish-black. The total length of this bird rather exceeds one foot. The other species are the Great Black Woodpecker (*Dryocopus martius*), the Northern Three-toed Woodpecker (*Picoides tridactylus*), and the Lesser Spotted Woodpecker (*Picus minor*).

THE RED-HEADED WOODPECKER is a most striking and attractive bird. In the Eastern States, individuals are found during moderate winters, as well as in New York and Pennsylvania. They make their appearance about the first of May, and leave about the middle of October. Their range is from Canada to the Gulf of Mexico.

THE YELLOW-BELLIED WOODPECKER (*Sphyrapicus varius*) is one of our resident birds, and a beautiful one it is. It visits the orchards in considerable numbers in October, and is occasionally seen during winter. When rearing its young, it seeks the depths of the forests, and is therefore not so often seen in the warmer season.

Dr. Brewer says: "This bird was met with in the overland expedition in flocks, on the banks of the Saskatchewan, in May. Its manners at the period of the year were strikingly contrasted with those of the resident Woodpeckers, for instead of flitting in a solitary way from tree to tree, and assiduously boring for insects, it flew about in crowded flocks in a restless manner, and kept up a continual chattering."

THE HAIRY WOODPECKER (*Picus villosus*) is another of our resident birds, and is also an orchard visitor. In May he retires to breed, and is not seen until the autumn months. Sometimes, however, he remains and breeds in the orchard. Exceptions of this kind seem to occur with other species. This species is common at Hudson's Bay, and southwards to Georgia. Its voice is a shrill cry, strong and tremulous. It also has a single note or *chuck*, which it often repeats in an eager manner, as it hops about and performs its usual work of digging into the bark of trees. Its plumage is soft, loose, and unwebbed; hence the name. A great mass of hairs surround the nostrils, which suggest their use as a protecting barrier when the head is protruded into the decayed wood it so frequently digs into for insect food.

LEWIS' WOODPECKER (*Melanerpes torquatus*) is a singularly marked and elegant bird. Its size is considerably more than the preceding, and it has a more compact and pleasing



THE THREE-TOED WOODPECKER.—*Picoides tridactylus*.

plumage. It was named by Wilson in honor of the memory of Captain Lewis, who with General Clark made the first notable excursion into the then unexplored countries of the Yellowstone region. This bird is one of several that have the habit of hiding acorns in the holes purposely pecked for them in decayed trees.

THE RED-BELLIED WOODPECKER (*Centurus carolinus*), says Wilson, has all the restless and noisy habits so characteristic of its tribe. It is more shy and less domestic than the Red-headed or any of the spotted Woodpeckers. It is also more solitary. It prefers the largest high timbered woods, and tallest decayed trees of the forest, seldom appearing near the ground, on the fences, or in orchards. Its voice is hoarser than any of the others, and its usual note,

chorr, has often reminded me of the bark of a lap-dog. It is a most expert climber, possessing extraordinary strength in the muscles of its feet and claws, and moves about the body and limbs of trees with great facility. It rattles like the others of its tribe on dead limbs, and with such violence as to be heard in clear weather more than a half mile off. Like others, it digs out for itself a nesting-place in the limb of a tree, producing two broods in a season.

This species inhabits a large range of country; in all portions it seems to be resident, or nearly so. The benefits derived from such busy workers after pest insects, that lie lurking beneath the barks of trees in our forests, must be incalculable.

THE RED-COCKADED WOODPECKER (*Picus querulus*). Wilson first discovered this bird, in the woods of North Carolina. The singularity of its voice, which quite resembles that of young nestlings, and the red streak on the side of its head, suggested the specific name he gave it. He found it also in South Carolina and Georgia. It is thought to be an intermediate form between the Red-bellied and Hairy Woodpecker. The distinguishing character is the fine line of vermilion on each side of the head.

THE CALIFORNIA WOODPECKER (*Melanerpes formicivorus*) is especially a Pacific coast bird, extending to Northern Mexico. Dr. Heerman describes this as one of the noisiest as well as the most abundant species in California. It catches insects on the wing, after the manner of the Fly-catchers. This bird is noted for its habit of storing acorns in dead trees, by pecking holes for each nut, and forcing them into them.

AMERICA possesses many species, among which the RED-HEADED WOODPECKER deserves a short notice, as being a good representative of the Black Woodpeckers.

It is one of the commonest of American birds, bold, fearless of man, and even venturing within the precincts of towns. The habits of this bird are well told by Audubon and Wilson.



RED-HEADED WOODPECKER.—*Picus erythrocephalus*.

The former author remarks of this bird: "When alighted on a fence stake by the road, or in a field, and one approaches them, they gradually move sideways out of sight, peeping now and then to discover your intention, and when you are quite close and opposite, lie still until you have passed, when they hop to the top of the stake, and rattle upon it with their bill, as if to congratulate themselves on the success of their cunning. Should you approach within arm's length, which may frequently be done, the Wood-

pecker flies to the first stake or the second from you, bends his head to peep, and rattles again, as if to provoke you to continuance of what seems to him excellent sport. He alights on the roof of the house, hops along it, beats the shingles, utters a cry, and dives into your garden to pick the finest strawberries he can discover."

Every one who has had practical experience of this bird agrees that it is very mischievous in a garden ; and even Wilson, whose kind heart would hardly permit him to see that any feathered creature could be hurtful to man, is forced to admit that its robberies are very extensive, but ought to be conceded as a tribute of thankfulness to the bird for eating so many grubs. "Wherever there is a tree or trees of the wild cherry," writes Wilson, "covered with ripe fruit, there you see them busy among the branches, and in passing orchards you may easily know where to find the earliest and sweetest apples, by observing those trees on or near which the Red-headed Woodpecker is skulking. For he is so excellent a connoisseur in fruit, that wherever an apple or pear tree is found broached by him, it is sure to be among the ripest and best-flavored ; when alarmed, he seizes a capital one by striking his open bill deep into it, and bears it off to the woods.

"When the Indian corn is in its rich, succulent, milky state, he attacks it with great eagerness, opening a passage through the numerous folds of the husks, and feeding on it with voracity. The girdled or deadened timber, so common among corn-fields in the back settlements, are his favorite retreats, whence he sallies out to make his depredations. He is fond of the ripe berries of the sour gum, and pays pretty regular visits to the cherry-trees when loaded with fruit. Towards fall he often approaches the barn or farm-house, and raps on the shingles and weather-boards. He is of a gay and frolicsome disposition, and half a dozen of the fraternity are frequently seen diving and vociferating around the high dead limbs of some large tree, pursuing and playing with each other, and amusing the passenger with their gambols.

"Their note or cry is shrill and lively, and so much resembles that of a species of tree-frog which inhabits the same tree that it is sometimes difficult to distinguish the one from the other."

On account of the garden-robbing propensities of this bird, it is held in much odium, and trapped whenever occasion offers itself. In some places the feeling against it was so strong, that a reward was offered for its destruction. It is probable, however, that the services which it renders by the destruction of noxious insects may more than compensate for its autumnal ravages in the fields and orchards.

Unlike the previous species, which is a permanent inhabitant, the Red-headed Woodpecker is a bird of passage, appearing in Pennsylvania about the beginning of May, and leaving that country towards the end of October. The eggs of this bird are pure white, speckled with reddish-brown, mostly towards the larger end, and generally six in number.

The adult male is a really beautiful bird, its plumage glowing with steely-black, snowy-white, and brilliant scarlet, disposed as follows: The head and neck are deep scarlet, and the upper parts of the body are black, with a steel-blue gloss. The upper tail-coverts, the secondaries, the breast and abdomen, are pure white. The beak is light blue, deepening into black towards the tip ; the legs and feet are blue-green, the claws blue, and round the eye there is a patch of bare skin of a dusky color. The female is colored like her mate, except that her tints are not so brilliant. The young of the first year have the head and neck blackish gray, and the white on the wings is variegated with black. The total length of the bird is between nine and ten inches.

THE Ground Woodpeckers are represented by the GOLD-WINGED WOODPECKER of America.

This bird may lay claim to the title of the feathered ant-eater, for it feeds very largely on those insects, and has its beak shaped in a somewhat pickaxe-like form, in order to enable it to dig up their nests from the ground and the decaying stumps of trees. In the stomach of one of these birds Wilson found a mass of ants nearly as large as a plum. It also feeds much on woodlice, those destructive creatures which eat the bitterest and the toughest substances with the best of appetites, and have been known to render a boat unsafe for sea, in spite of the strong flavor of salt water, pitch, and tar, with which seafaring boats are so liberally imbued.

It is a brisk, lively, and playful creature, skipping about the trunks of trees with great activity, and "hopping not only upwards and downwards, but spirally, pursuing and playing with its fellow in this manner round the body of the tree." I may here mention that I never

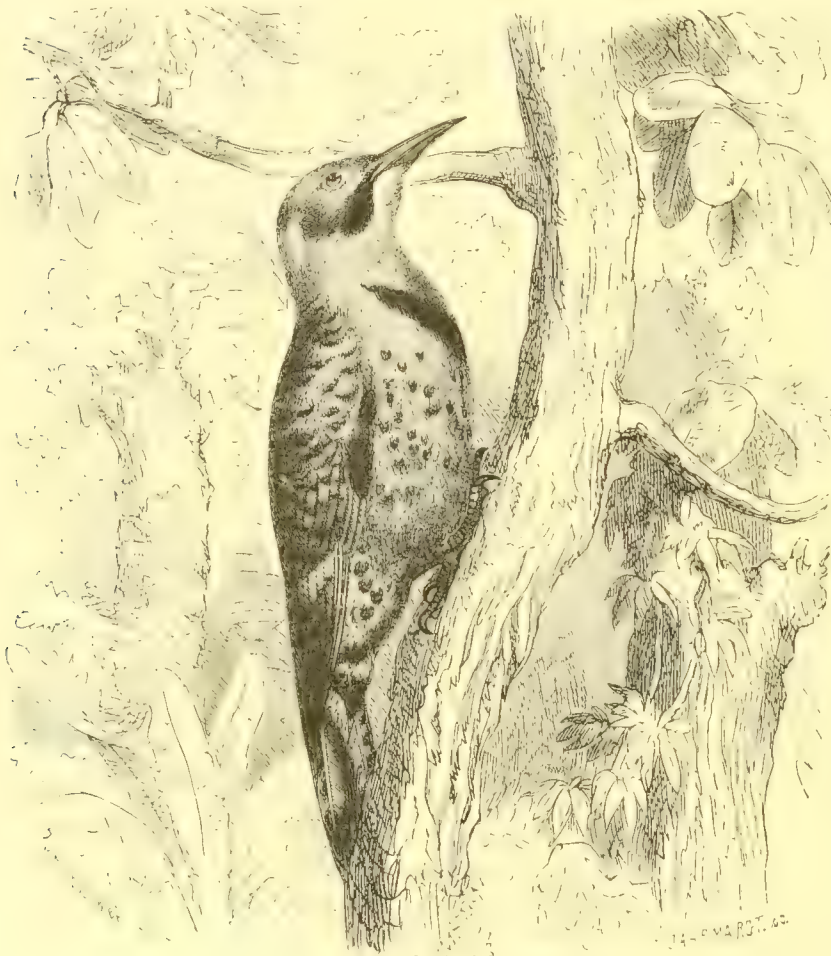
yet saw a Woodpecker hop down the tree's trunk. Like others of its race, it is fond of varying its insect diet with a little vegetable food, eating various fruits, the Indian corn, the wild cherries, and the sour gum and cedar berries.

The Gold-winged Woodpecker seems to be readily tamed, as may be seen from the following account by Wilson:—

“In rambling through the woods one day, I happened to shoot one of these birds and wounded him slightly in the wing. Finding him in full feather, and seemingly but little hurt, I took him home and put him into a large cage made of willows, intending to keep him in my own room, that we might become better acquainted.

“As soon as he found himself inclosed on all sides, he lost no time in idle fluttering, but throwing himself against the bars of the cage, began instantly to demolish the willows, batter-

ing them with great vehemence, and uttering a loud piteous kind of cackling, similar to that of a hen when she is alarmed and takes to wing. Poor Baron Trenck never labored with more eager diligence at the walls of his prison than this son of the forest in his exertions for liberty; and he exercised his powerful bill with such force, digging into the sticks, seizing and shaking them from side to side, that he soon opened for himself a passage, and though I repeatedly repaired the breach, and barricaded every opening in the best manner I could, yet, on my return into the room, I always found him at large, climbing up the chairs, or running about the floor, where, from the dexterity of his motions, moving backwards, forwards, and sideways with the same facility, it became difficult to get hold of him again.



GOLD-WINGED WOODPECKER.—*Colaptes auratus*.

“Having placed him in a strong wire cage, he seemed to give up all hopes of making his escape, and soon became very tame; fed on young ears of Indian corn, refused apples, but ate the berries of the sour gum greedily, small winter grapes, and several other kinds of berries, exercised himself frequently in climbing, or rather hopping perpendicularly along the sides of the cage, and as evening drew on fixed himself in a high hanging or perpendicular position, and slept with his head in his wing.

“As soon as dawn appeared, even before it was light enough to perceive him distinctly across the room, he descended to the bottom of the cage and began his attack on the ears of Indian corn, rapping so loud as to be heard from every room in the house. After this he would sometimes resume his former position and take another nap. He was beginning to become very amusing and even sociable, when, after a lapse of several weeks, he became drooping and died, as I conceived, from the effects of his wound.”

The coloring of the Gold-winged Woodpecker is very complicated. The top of the head is gray, the cheeks are cinnamon, and the back and wings are umber, marked with transverse bars of black. On the back of the head is a semilunar spot of blood-red, the two horns pointing towards the eyes, and a streak of black passes from the base of the beak down the throat. The sides of the neck are gray. The breast, throat, and chin are cinnamon, and a broad crescentic patch of black crosses the chest. The abdomen is yellowish-white, profusely spotted with black. The upper tail-coverts are white, serrated with black. The inner sides of the wings and tail, and the shafts of nearly all the feathers, are of a beautiful golden-yellow; "the upper sides of the tail and the tip below are black, edged with light loose filaments of a cream color, the two exterior feathers serrated with whitish." The bill is dusky brown color and slightly bent. The female is colored, but does not possess the black feathers on each side of the throat. The total length of this bird is about one foot.

The Golden-winged Woodpecker represents a group of three distinct species. Two varieties of the present species are also known. These birds have quite a different general appearance from the Woodpeckers proper, so called. They are much larger, and have a very compact and handsomely decorated plumage. The terms Flicker, Highhold, and Yellow Hammer are applied to them in various localities. Audubon says of this bird: "They propel themselves by numerous beats of the wings, with short intervals of sailing, during which they scarcely drop from the horizontal. When passing from one tree to another, they also fly in a straight line, until within a few yards of the spot on which they intend to alight, when they suddenly raise themselves a few feet, and fasten themselves to the bark of the tree by their claws and tail. Their migrations, although partial, as many remain in the middle districts during the severest winters, are performed in the night, as is known by their note and the whistling of their wings, which are heard from the ground."

The tongue of this bird is round and wiry, flattened towards the tip, pointed and furnished with minute barbs; it is also long, and can be instantaneously protruded to an uncommon distance. The hyoid bone (in the tongue), like those of its tribe, is a substance, for strength and elasticity, resembling whalebone, divided into two branches, each the thickness of a knitting-needle, that pass one on each side of the neck to the bird's head, where they unite and run up along the skull in a groove, covered with a thin membrane or sheath, descend into the upper mandible by the right side of the right nostril, and reach to within a half an inch of the point of the bill, to which they are attached by another extremely elastic membrane that yields when the tongue is thrown out, and contracts as it is retracted.

The tongue of this bird is supplied with a viscid fluid, secreted by two glands that lie under the ear on each side, and are at least five times larger in this species than any other of its size. With this the tongue is continually moistened, so that every small insect it touches instantly adheres to it. The tail, with its pointed ends, and the feet and claws, all show adaptation to easy climbing, notwithstanding the heavy body.

The range of this bird is from the Arctic Ocean to the Gulf of Mexico, and from the Atlantic Ocean to the Rocky Mountains. To some extent it is a constant resident in New England, as well as in the Southern States. A variety of Flicker has the shafts of the feathers red. It is found in the region bounded by the Black Hills and the Pacific. Dr. Coues says it is abundant in Arizona, where it is known as the Yellow Hammer. It is a wonderful power of bill this bird has. He very readily pecks a hole in the weather-board of a house simply for the purpose of lodging; its board or subsistence being, as we have seen, obtained in a similar manner in trunks of trees. Mr. Ridgway says it is more shy than the other variety (of the last), but attributes the circumstance to the fact that the Indians hunt them for their feathers.

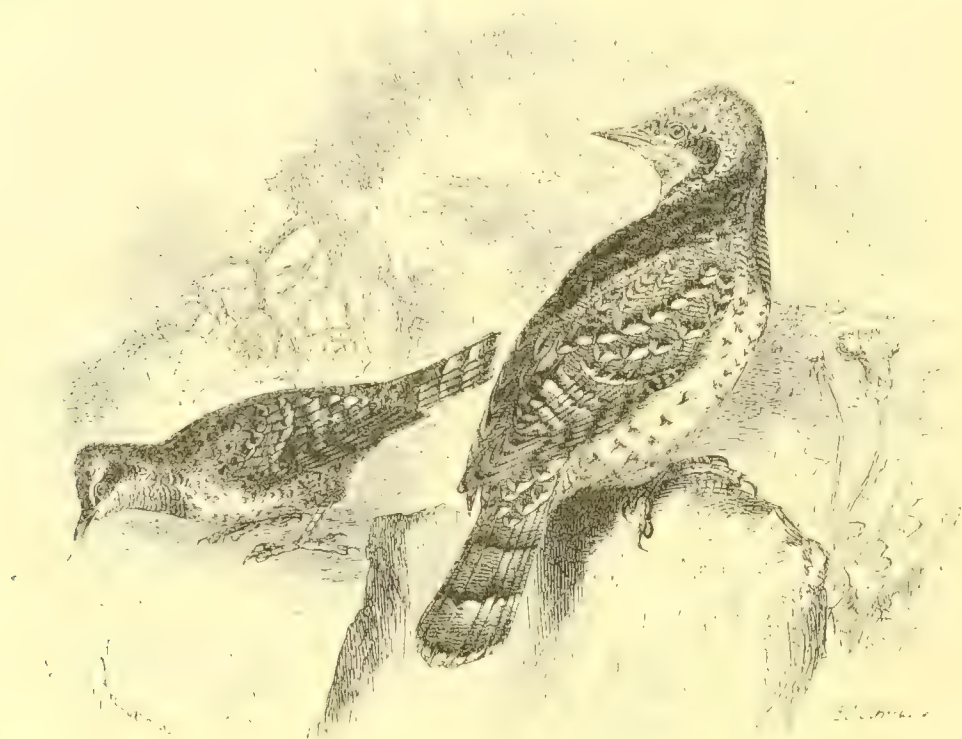
A Hybrid Flicker, having the characters of two varieties, and another species, called Cape Flicker, are found in the southwest.

THE curious bird, known under the popular and appropriate name of the WRYNECK, is by some authors considered to be closely allied to the woodpeckers.

The Wryneck is a summer visitant to northern countries, appearing just before the cuckoo,

and therefore known as the cuckoo's footman. There is another name for this bird, signifying "Cuckoo's knave," "Gwas-y-gôg," the pronunciation of which I must leave to Welsh throats.

The tongue of this bird is long, slender and capable of being projected to the distance of an inch or so from the extremity of the beak, and its construction is almost exactly the same as that of the woodpecker. As might be supposed, it is employed for the same purpose, being used in capturing little insects, of which ants form its favorite diet. So fond, indeed, is the Wryneck of these insects, that in some countries it is popularly known by the name of Emmet-hunter. In pursuit of ants it trips nimbly about the trunks and branches of trees, picking them off neatly with its tongue as they run their untiring course. It also frequents ant-hills, especially when the insects are bringing out their pupæ to lie in the sun, and swallows ants and pupæ at a great pace. When, as in damp or cold weather, the ants remain within their fortress, the Wryneck pecks briskly at the hillock until it breaks its way through the fragile walls of the nest, and as the warlike insects come rushing out to attack the intruder



WRYNECK.—*Jynx torquilla*.

of their home and to repair damages, it makes an excellent meal of them in spite of their anger and their stings.

When ants are scarce and scantily spread over the ground, the Wryneck runs after them in a very agile fashion; but when it comes upon a well-stocked spot, it stands motionless, with the exception of the head, which is darted rapidly in every direction, the neck and central line of the back twisting in a manner that reminds the observer of a snake. When captured or wounded, it will lie on its back, ruffle up its feathers, erect its neck, and hiss so like an angry serpent that it is in some places known by the name of the snake-bird. It is a bird of retiring habits, keeping itself mostly to the wooded parts of the country, and especially favoring fir-woods where the ants most congregate, the dead leaves of the fir-trees forming excellent material for their nests without the trouble of cutting them to a proper length.

As the food of this bird is so dependent on the ants, it only comes north when the weather is warm enough to induce the ants to leave their winter quarters; and as soon as they begin to retire into their hiding-places, it takes its departure for warmer lands. During the early part of the season they are rather sociable, and may be captured by a good imitation of their call-note.

Mr. Yarrell, however, seems to hold rather an opposite opinion, and says that "the Wryneck is rather solitary in its habits, being very seldom seen associating with, or even near, any other bird than its own single partner, and that too but for a very limited portion of the year."

In captivity, the Wryneck is tolerably docile; and when taken young can be perfectly tamed. In some countries it is the fashion to tie a string to the leg of a tame Wryneck and take it out for daily exercise for food, letting it run up the trees or on the ground in search of insects. The little bird soon becomes accustomed to this kind of life, and when the string is pulled returns to its owner, and runs about his clothes until he gives it permission to take another excursion.

The nest of the Wryneck is hardly deserving of that name, being merely composed of chips of decaying wood. The eggs are laid in the hollow of a tree, not wholly excavated by the bird, as is the case of the woodpeckers, its beak not being sufficiently strong for such a task, but adapted to the purpose from some already existing hole.

From a letter of a correspondent to Mr. Yarrell, it seems that although the Wryneck makes no nest, it does not hesitate in appropriating the deserted home of any other bird which it may find in the hollow which it selects for nidification. The bird had chosen a hole in an old apple-tree for that purpose, and the eggs were laid upon a mass of hair, moss, and fibrous roots, evidently a deserted nest of a redstart. The pertinacity with which the Wryneck adhered to the tree was really extraordinary, for she suffered her nest to be disturbed and replaced five times, and to be robbed four times of her eggs before she would finally leave the spot. The number of eggs laid by the Wryneck is rather great, as many as ten having often been found in a single nest. In the instance just mentioned, no less than twenty-two eggs were taken at the four intervals. Their color is beautiful white with a pinky tinge, not unlike those of the kingfisher; and as this pink color is produced by the yolk showing itself through the delicate shell, it is, of course, lost when the egg is emptied of its contents. The plumage of this little bird, although devoid of brilliant hues, and decked only with brown, black, and gray, is really handsome from the manner in which those apparently sombre tints are disposed. In Yarrell's book on birds the markings of the Wryneck are given so concisely that they cannot be altered without damage. "The top of the head grayish-brown, barred across with streaks of darker brown and white; neck, back, rump, and upper tail-coverts gray, speckled with brown. From the occiput (*i.e.* back of the head) down the middle line of the back of the neck and between the scapularies, is a streak of dark brown mixed with black; the wings brown, speckled with lighter yellow-brown, and a few white spots; the primary quill-feathers barred alternately with pale yellow, brown, and black; the tertials on the upper surface marked with a descending line of black; upper surface of the tail-feathers mottled with gray and brown, and marked with four irregularly transverse bars of black; chin, throat, ear-coverts, and neck, in front, pale yellow-brown with narrow transverse black lines; breast, belly, sides, and under tail-coverts, dull white tinged with yellow-brown, and spotted with black; under surface of tail-feathers pale grayish-brown, speckled and barred with black; legs, toes, and claws brown." The total length of the adult male bird is about seven inches, and the female is a little smaller than her mate.

CUCKOOS.

THE Cuckoos constitute a large family, containing several smaller groups, and many species. Representatives of the groups will be found in the following pages. All these birds have a rather long, slender, and somewhat curved beak, which in some species takes a curve so decided, that it gives quite a predaceous air to its owner. Examples of the Cuckoo tribe are to be found in almost every portion of the globe, and are most plentiful about the tropics.

The first group is that of which the celebrated GREAT HONEY GUIDE is our typical example. The Honey Guides derive their name from the fact that they are extremely fond of wild bees and their honey, and by their eager cries attract keen-eared and sharp-eyed hunters

to the spoil. It has been said that the birds intentionally ask the aid of mankind to dig out the nests when the combs are placed in too secure a spot, and that they utter their peculiar cry of "Cherr! cherr!" to call attention, and then precede their human assistants to the nest, fluttering their wings, and keeping a few yards in advance. That they do lead travellers to the bees' nests is true enough, but that they should seek out human beings, and intentionally bring them to the sweet stores, seems doubtful, though it has been affirmed by many travellers.

At all events, even up to the present time, whenever the Honey Guide does succeed in leading the Hottentot to a store of honey, the men are grateful to it for the service, and do not eat the whole of the honey, leaving some for their confederate. Neither will they kill the



GREAT HONEY GUIDE.—*Indicator major*.

bird, and they are offended if they see any one else do so. Sparrman remarks that the present species is seldom seen near Cape Town, as it cannot find a supply of its food so near the habitations of man, and that he never saw any except on the farm of a single colonist, who had succeeded in luring some wild swarms by fixing convenient boxes on his grounds.

One thing is certain, that the Honey Guide is by no means a safe conductor, as it will sometimes lead its follower to the couching-place of a lion or tiger, or the retreat of a poisonous snake. Gordon Cumming, as well as other travellers, testifies to this curious mode of conduct.

The feathers of the Honey Guide are thick, and the skin is tougher than is usually the case with birds, so that if the irritated bees should attack them, little harm is done unless a sting should penetrate the eye or the bare skin around it.

Honey Guides are found in various parts of Africa, India, and Borneo, and in all cases their habits seem to be very similar. Two species are very common in Southern Africa, namely, the bird figured in the engraving, and a smaller species (*Indicator minor*). The nesting of both these birds is very similar, their homes being pendent from the branches of trees, and beautifully woven into a bottle-like form, the entrance being downward. The material of which they are composed is bark torn into filaments. The eggs are from three to four in number, and their color is a brownish white. Both parents assist in the duties of incubation.

These birds are very soberly clad, the Great Honey-eater being brown above, darker on the wings and tail, and grayish-white on the under surface of the body.

WE now arrive at the Ground Cuckoos, all of which are inhabitants of tropical America and the neighboring islands, and are represented by the RAIN-BIRD.

This curious Cuckoo, which is popularly known in Jamaica by the name of Rain-Bird, is tolerably common in the West Indian Islands.

According to Mr. Gosse, who has given a very interesting account of this species in his "Birds of Jamaica," the Rain-Bird is so inquisitive at the sight of any new object, and so reckless of danger while gratifying its curiosity, that it is often called by the name of Tom Fool. Indeed, the first Rain-Bird which he saw lost its life by a stone, while sitting on a bush only a few feet distant, so occupied with the two featherless bipeds that were approaching, that it suffered itself to be struck from its perch by a missile that might have been avoided with the least precaution.



GROUND CUCKOO.—*Geococcyx californianus*.

The wings of this bird are rather short and weak, so that it does not fly to any great distance when alarmed, but merely flits to a branch a few yards in advance, and then turns round and contemplates the intruder. It has a curious habit of sitting across a branch with its head lower than its feet, and balanced by the long tail, which hangs nearly perpendicularly. The voice is a harsh cackle, something like the words "ticky-ticky," pronounced with very great rapidity. It feeds on animal substances, preferring insects and spiders to any other kind of food, but not disdaining to prey upon the smaller reptiles and mammalia. The nest seems to be made in the fork of a branch. The color of this bird is soft brown-gray upon the

back, dullish yellow on the under parts of the body, and rusty red upon the wings. The long tail is beautifully barred with black and white.

A KIND of Ground Cuckoo (*Geococcyx californianus*), is found inhabiting the Southwest, and Mexico. It is the Chaparral Cock, Paisano, or Road-runner. The latter term explains its habit of frequenting the highways, always on the ground, where it will outrun the fleetest horses. The native population hunt this bird on horses, and regard it sport to run it down in this manner. Even hounds find it difficult to reach them after considerable running. It has a singularly broad and long tail, which is borne erect when running, and no doubt assists materially in steadying the bird in its long and rapid course. In evidence of its wonderful swiftness of foot, Col. McCaul states that when, on one occasion, approaching Olympia Creek, in Texas, with a small party, he discovered a Chaparral Cock in the open road, about a hundred yards in advance, for his amusement he put spurs and dashed after the bird with one of his men. It was thus pursued for full four hundred yards along a smooth and level road, over which, with straightened neck and slightly extended wings, it

swiftly glided, without seeming to touch the ground. When at last it sought shelter in a thicket, they had not gained upon it more than fifty yards. This bird is singularly courageous in combat with the rattlesnake, which it always is ready to fight. Its only voice is a weak scream, which it seldom utters. It is unsocial, never going in flocks. It becomes quite familiar when near human habitations, and frequently seems to prefer the proximity of farm-houses. It even ventures near enough to hunt for mice, which it destroys with much dexterity.



PHEASANT CUCKOO.—*Centropus phasianus*.

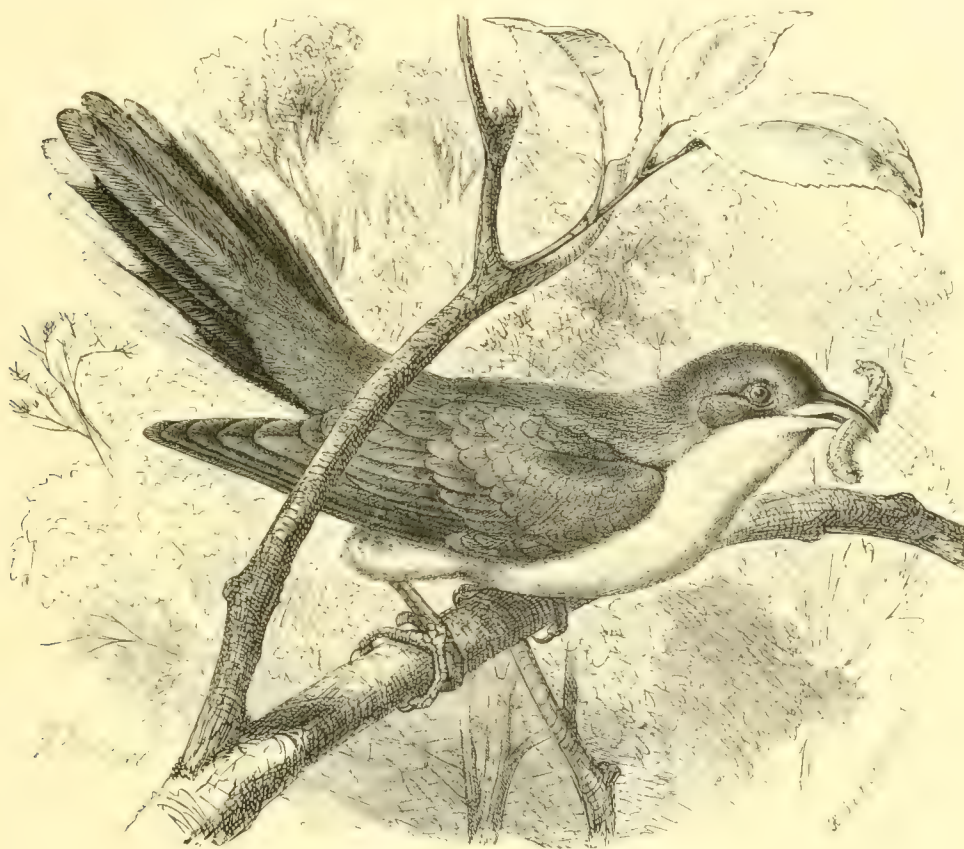
OF the Coccoyinae, or Lark-heeled Cuckoos, so called from their long hind toe, we shall select two examples; the one being an Australasian bird, and the other an inhabitant of America.

The PHEASANT CUCKOO derives its popular appropriate name from the great length of its tail, which gives to the bird an outline bearing some resemblance to that of the pheasant, a similitude which is further carried out by the bold markings of its plumage. This handsome bird is a native of New South Wales, where it is not uncommon, although rather a local bird, seldom wandering to any great distance from the spot which it loves. It frequents low-lying and swampy lands; living almost entirely among the rank herbage of such localities, and keeping itself concealed among the bushes. When alarmed it flies to the nearest tree, alights

on the lowest branches, rapidly makes its way through the boughs to the very summit, and then takes to wing.

The nest of this bird is placed on the ground, shaded by a convenient tuft of grass. It is a large and rather clumsily constructed edifice; having two apertures, through one of which the hen, while sitting, thrusts her head, and through the other she pokes her tail. The eggs are generally from three to five in number, and are more spherical than is generally the case among birds. Their color is grayish-white, sometimes blotched with brown, and they are remarkable for the roughness of their shells.

The colors of this bird are not brilliant, but are rich and warm in their tone and disposed so as to form very bold markings. The upper surface of the body is black devoid of gloss, with the exception of the shafts of the feathers; which are highly polished and glittering. The wing-coverts are brown mottled richly with black. The wings are ruddy chestnut barred with black, and the tail is dark brown glossed with green, freckled with brown, barred with white and tipped with the same color. The young birds are much lighter in color than their parents, are more liberally streaked, and have more white about them.



YELLOW-BILLED CUCKOO.—*Coccyzus americanus*.

WILSON says: "The singular, I will not say unnatural, conduct of the European Cuckoo (*Cuculus canorus*), which never constructs a nest for itself, but drops its eggs in those of other birds, and abandons them to their mercy and management, is so universally known, and so proverbial, that the whole tribe of Cuckoos have, by some inconsiderate people, been stigmatized as destitute of all parental care and affection. Without attempting to account for this remarkable habit of the European species, far less to consider as an error what the wisdom of Heaven has imposed as a duty upon the species, I will only remark that the YELLOW-BILLED AMERICAN CUCKOO builds its own nest, hatches its own eggs, and rears its own young; and, in conjugal and parental affection, seems nowise behind any of its neighbors of the grove.

“Early in May they begin to pair, when obstinate battles take place among the males. About the tenth of that month they commence building. The nest is usually fixed among the horizontal branches of an apple-tree; sometimes in a solitary thorn, crab, or cedar, in some retired part of the woods. It is constructed, with little art, and scarcely any concavity, of small sticks and twigs, intermixed with green weeds and blossoms of the common maple. On this almost flat bed, the eggs, usually three or four in number, are placed; these are of a uniform greenish-blue color, and of a size proportionable to that of the bird. While the female is sitting, the male is generally not far distant, and gives the alarm, by his notes, when any person is approaching. The female sits so close, that you may almost reach her with your hand, and then precipitates herself to the ground, feigning lameness, to draw you away from the spot, fluttering, trailing her wings, and tumbling over, in the manner of the partridge, woodcock, and many other species. Both parents unite in providing food for the young. This consists, for the most part, of caterpillars, particularly such as infest apple-trees. The same insects constitute the chief part of their own sustenance.

“They are accused, and with some justice, of sucking the eggs of other birds, like the crow, the blue jay, and other pillagers. They also occasionally eat various kinds of berries. But, from the circumstance of destroying such numbers of very noxious larvæ, they prove themselves the friends of the farmer, and are highly deserving of his protection.”

THE YELLOW-BILLED CUCKOO (*Coccygus americanus*) is distributed throughout North America from Canada to Florida, and from the Atlantic coast to California. It also is met with in the West India Islands, and breeds in nearly all these localities.

THE MANGROVE CUCKOO (*Coccygus minor*) is a regular summer visitor in Key West and the other Florida Keys. It is especially West Indian.

THE BLACK-BILLED CUCKOO (*Coccygus erythrophthalmus*) differs from the Yellow-billed in the black of the bill, and the absence of black on the tail-feathers; some minor differences also occur. In other respects it is closely allied to the latter, and is also distributed in nearly the same localities, but is less numerous. Wilson says this bird retires into the woods to breed, being less familiar than the former species, and choosing an evergreen sapling as a site for the nest, which is made of twigs pretty well put together, but still little more than a concave flooring, and lined with moss and withered catkins of the hickory. The female is less timorous than the Yellow-bill, and sits composedly until the intruder has approached very closely, without showing evidence of alarm. The nest, without being at all remarkable for its finish, or the nicety of its arrangements, is much more artistic and elaborate than that of the Yellow-billed.

THE ANI, OR SAVANNAH BLACKBIRD (*Crotophaga ani*). This is scarcely more than a straggler in the United States, its *habitat* being in the West Indies, and in South America. It is about the size of the preceding bird, and has some resemblance to the parrots. In the West Indies it is called the Black Witch. Its familiar habits and grotesque appearance make it quite universally known. The little chickaree fly-catcher makes it a subject of torment, and chases him with vigorous thrusts of his little bill, until the larger bird retreats in disgust. It moves with a peculiar gliding flight. In feeding it is omnivorous. It catches insects on the ground by very active jumps; pursues them on the wing, and with its sharp, thin bill, digs them out of the earth. It hops about and over the cattle, and when grazing, on the cattle's tails will be seen to be one or more clinging to the hairs, and pecking out insects that may be there. They are what is called downward climbers, not upward climbers. They enter a tree by alighting on the extremity of a branch, and reach the centre by creeping along the stem.

Another species, called the Groove-billed Ani, has lately been found to be entitled to a place in the North American fauna.

The Anis are all inhabitants of tropical climates, and are found chiefly in forest-lands, being most common in the dense woods of South America. They are by no means large birds,

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We purpose that our patrons shall be aided and interested in their study by such an array of pictures as has never before embellished any Natural History. In numerous instances the engraving is printed in oil-colors, and this portion of the illustrations has been taken charge of by Messrs. L. Prang & Co., of Boston, who we believe rank foremost for high artistic results in this department of printing. These Oleographs were copied under the superintendence of Mr. Prang from the renowned "Tafeln" of "Brehm's Thierleben," so that they may be declared perfectly reliable.

We sought competent advice from various sources as to the most suitable text that should accompany this panorama of handsome Engravings. It was found impossible to embody all the present ideas of naturalists in a single work like this on account of the rapid advances and constant changes in their knowledge of, and habits of thought respecting, the Animal World. And it seemed to us correct that the true object of Zoology is not to arrange, to number, and to ticket animals in a formal inventory, but to inquire into their life-nature, and not simply to investigate the lifeless organism.

What do we know of "Man" from the dissecting-room? Is it not Man, the warrior, the statesman, the poet, etc., that we are interested in? With all veneration which attaches itself to those who are the accredited possessors of abstruse learning, their inordinate use of phraseology detracts too much, we fear, from the fascination that the study of the Animal World would otherwise yield, and as we are not content to have our work restricted to a favored few, we thought the task placed in our hands to be to keep the work free from a repellant vocabulary of conventional technicalities. Our endeavor has been to find an author whose work would be noted for its fund of anecdote and vitality rather than for merely anatomical and scientific presentation, and we arrived at the conclusion that we could not do better than avail ourselves of the Rev. J. G. Wood's comprehensive work—a work most popularly approved by speakers of the English language. It would be superfluous to say one word concerning the standard character of his book, from the pages of which old and young at the other side of the Atlantic have obtained so much instruction and rational amusement. Avoiding the lengthened dissertations and minute classifications of specialists, he presents to his readers in popular terms a complete treatise on the Animal Kingdom of all climes and countries. The one objection that could be urged against it was, that animal life in America might be treated more fully and American forms given more consideration. In order to obviate this drawback and to do full justice to the creatures of our own country, we secured the aid of Dr. J. B. HOLDER, of the American Museum of Natural History in New York, an undoubted American authority, who has adapted Wood's work to American wants and given prominence to American forms of Animal life.

The splendid work on Rodentia, by Allen, Coues, and others, will be fully consulted. The valuable work on North American Birds, by Baird, Brewer, and Ridgway, will be the guide in the treatment of birds. The late arrangement of the classification and nomenclature of North American Birds, by Mr. Ridgway, and the Committee on that subject of the Ornithologists' Union, will be utilized in full. The arrangement of Mammals will be after the latest classification by Professor Flower, of the Zoological Society of London. So that this will be the first popular Natural History worthy of the name that has made its appearance here, which gives due and full recognition to the animate world surrounding us.

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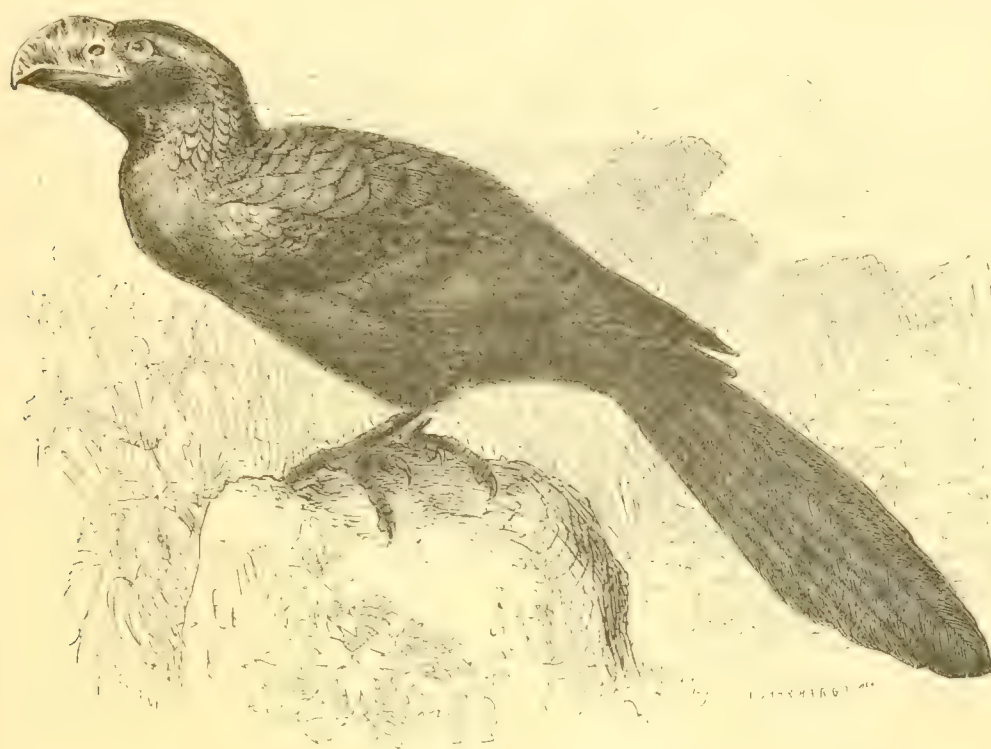


seldom exceeding the dimensions of the common Blackbird. These birds are known by their compressed and arched beaks, and the decided keel or ridge upon the upper mandible.

The Savannah Blackbird is acknowledged to be the typical species of these birds, as it exhibits the peculiar form of the beak in a very marked manner. As it is rather a conspicuous bird, it is known by several other names, among which are Razor-billed Blackbird and Great Blackbird. In some places it is called the Black Parrakeet, and in Mexico its native title is *Cacalototl*.

The food of the Savannah Blackbird is mostly of an animal nature, and consists chiefly of grasshoppers, locusts, and similar insects, although the bird is very fond of lizards and other small vertebrates, a prey which its peculiar beak is well calculated to secure. Seeds are also said to be eaten by this bird.

In some cases their insect-loving nature is directed in a manner very useful to the cattle-owners. In those regions, the cows are greatly troubled with ticks and other parasitic insects,



SAVANNAH BLACKBIRD.—*Crotophaga ani*.

which fasten upon their backs where the poor beasts cannot reach them. The Anis are fortunately very fond of these noxious insects, and perching upon the cow's back, soon rid them of their unpleasant companions. The cows are so well aware of the services rendered to them by these birds, that when they find themselves much annoyed by ticks, they lie down in order to permit the Anis to pursue their avocation without disturbance. Sometimes, according to Brown, in his History of Jamaica, the Anis remind the cows of their reciprocal duties, and if the great quadruped forgets to lie down for their mutual benefit, they hop about just in front of its nose as it grazes, and give it no peace until it complies with their request.

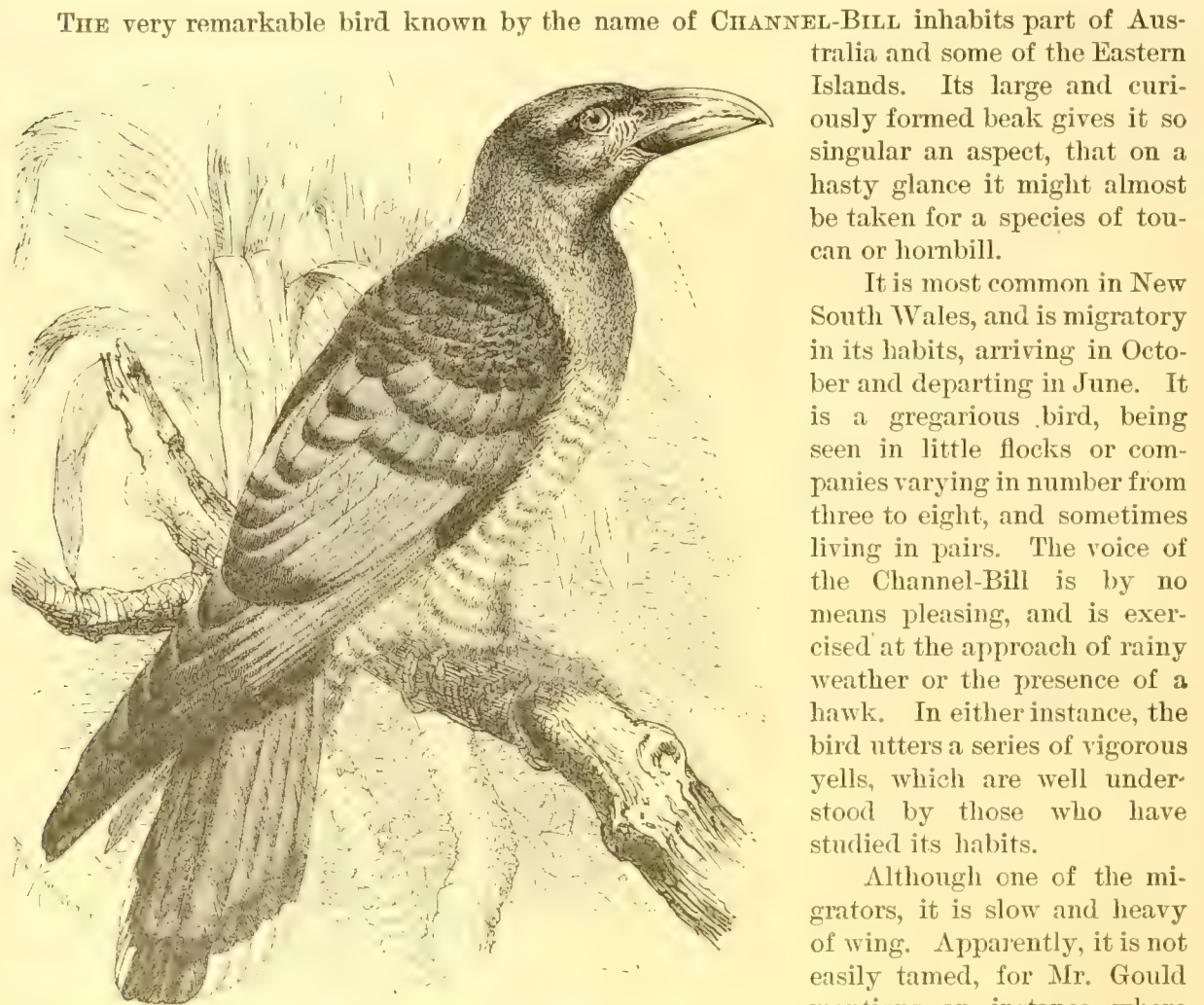
It is gregarious in its habits, associating in large flocks, and is a very fearless creature, caring little for the report or the effects of a gun. Whether this insensibility to danger be due to love of its comrades and to real courage, or only to that spurious bravery which fears nothing because it knows nothing, is not certain; but it is well known that if a flock of Anis be fired at, and many killed by the discharge, the survivors will only rise and fly to a short distance, and there settle as composedly as if no danger were at hand.

The Anis are very noisy, as is often the case with gregarious birds, and the combined loquacity of a large flock of Anis is almost deafening. They do not seem to use their wings

to any great extent, their flight being low and short. They are easily tamed, soon become amusing inhabitants of the house, and can be taught to utter several words. Fortunately for itself, the flesh of the Savannah Blackbird is thought to be very disagreeable, so that it is not killed for the table.

The nesting of this bird is rather peculiar. It haunts bushes, the skirts of woods, and similar localities, and builds its nest on the branches of trees. The nest is extremely large, and is said to be in common to several pairs of birds, which live amicably under the same roof like the sociable weaver birds of Africa.

In size the Savannah Blackbird rather exceeds the generality of its kind, equalling a pigeon in dimensions, the long tail adding to the apparent length. Its color is black, glossed with green.



CHANNEL-BILL.—*Scythrops Novæ-Hollandiæ*.

THE very remarkable bird known by the name of CHANNEL-BILL inhabits part of Australia and some of the Eastern Islands. Its large and curiously formed beak gives it so singular an aspect, that on a hasty glance it might almost be taken for a species of toucan or hornbill.

It is most common in New South Wales, and is migratory in its habits, arriving in October and departing in June. It is a gregarious bird, being seen in little flocks or companies varying in number from three to eight, and sometimes living in pairs. The voice of the Channel-Bill is by no means pleasing, and is exercised at the approach of rainy weather or the presence of a hawk. In either instance, the bird utters a series of vigorous yells, which are well understood by those who have studied its habits.

Although one of the migrators, it is slow and heavy of wing. Apparently, it is not easily tamed, for Mr. Gould mentions an instance where one of these birds was wounded

and kept alive for two days, during the whole of which time it refused to be reconciled to captivity, screaming and pecking fiercely at its cage and captor. Its food consists of the seeds of the red gum and peppermint, and it also feeds upon beetles, phasmidæ, and other large insects of the land which it frequents.

It is a very handsome and elegantly colored bird. The head and breast are gray, and the spaces around the eyes and nostrils are scarlet. The back is a deep grayish-green, each feather being tipped with black, so as to give that portion of the bird a boldly mottled aspect. The under parts are white tinged with buff, and faintly barred with grayish-brown. The long tail has the two central feathers black to the very tip, and the others are barred with black and tipped with white. Both sexes are alike in their coloring; the chief difference being that the

female is smaller than her mate. In dimensions the Channel-Bill is about equal to the common crow, but owing to the long and broad tail, which causes the bird to measure more than two feet in total length, it appears much larger than is really the case.

THERE are few birds which are more widely known by good and evil report than the common CUCKOO.

As the harbinger of spring, it is always welcome to the ears of those who have just passed through the severities of winter ; and as a heartless mother, an abandoner of its offspring, and an occupier of other homes it has been subjected to general reprobation. As is usual in such cases, both opinions are too sweeping ; for the continual cry of "Cuck-oo ! cuck-oo !" however agreeable it may be on the first hearing, soon becomes monotonous and fatiguing to the ear ; and the mother Cuckoo is not so far lost to all feelings of maternity as to take no thought for



CUCKOO.—*Cuculus canorus*.

her young, but ever remains near the place where it has deposited her egg and seems to keep watch over the foster-parents.

It is well known that the female Cuckoo does not make any nest, but places her egg in the nest of some small bird, and leaves it to the care of its unwitting foster-parents. Various birds are burdened with this charge, such as the hedge-warbler, the pied wagtail, the meadow-pipit, the red-backed shrike, the blackbird, and various finches. Generally, however, the three first are those preferred. Considering the size of the mother-bird, the egg of the Cuckoo is remarkably small, being about the same size as that of the skylark, although the latter bird has barely one-fourth the dimensions of the former. The little birds, therefore, which are always careless about the color or form of an egg, provided that it be nearly the size of their own productions, and will be perfectly contented with an egg-shaped pebble or a scraped marble, do not detect the imposition, and hatch the interloper together with their own young.

The general color of the Cuckoo's egg is mottled reddish-gray, but the tint is very variable in different individuals, as I can testify from personal experience. It has also been noted that the color of the egg varies with the species in whose nest it is to be placed, so that the egg

which is intended to be hatched by the hedge-warbler is not precisely of the same color as that which is destined for the nest of the pipit.

Several experienced naturalists now lean to the opinion that the female Cuckoo really feels a mother's anxiety about her young; and this theory—a somewhat recent one—is corroborated by an account kindly sent to me by a lady, at that time unknown to me. A young Cuckoo had been hatched in the nest of some small bird, and after it was able to leave the nest for a short time, was taken under the protection of a female Cuckoo, who had been hovering about the place, and which at once assumed a mother's authority over the young bird, feeding it and calling it just like any other bird.

On inquiring whether the old Cuckoo ever helped the young one back into the nest, nothing could be ascertained. The children of the family, who were naturally interested in the affair, used sometimes to pick up the young bird, and put it back into the nest, but it was often found in its warm home without human intervention, and as it was too helpless and timid to perform such a feat unaided, the natural assumption was that the old bird had given her assistance.

The mode by which the Cuckoo contrives to deposit her eggs in the nest of sundry birds was extremely dubious, until a key was found to the problem by a chance discovery made by Le Vaillant. He had shot a female Cuckoo, and on opening its mouth in order to stuff it with tow, he found an egg lodged very snugly within the throat.

When hatched, the proceedings of the young Cuckoo are very strange. As in process of time it would be a comparatively large bird, the nest would soon be far too small to contain the whole family; so the young bird, almost as soon as it can scramble about the nest, sets deliberately to work to turn out all the other eggs or nestlings. This it accomplishes by getting its tail under each egg or young bird in succession, wriggling them on to its back, and then cleverly pitching them over the side of the nest. It is rather curious that in its earlier days it only throws the eggs over, its more murderous propensities not being developed until a more advanced age.

There seems to be some peculiarity in the nature of the Cuckoo which forces other birds to cater for its benefit, as even in the case of a tame and wing-clipped Cuckoo, which was allowed to wander about a lawn, the little birds used to assemble about it with food in their mouths, and feed it as long as it chose to demand their aid.

Sometimes two Cuckoo's eggs have been laid in the same nest; when they are hatched there is a mutual struggle for the sole possession of the nest. Dr. Jenner, in his well-known and most valuable paper on this bird, gives the following account of such a strife:—

“Two Cuckoos and a hedge-sparrow were hatched in the same nest this morning; one hedge-sparrow's egg remained unhatched. In a few hours after, a combat began between the Cuckoos for the possession of the nest, which continued undetermined until the next afternoon, when one of them, which was somewhat superior in size, turned out the other, together with the young hedge-sparrow and the unhatched egg. This contest was very remarkable. The combatants alternately appeared to have the advantage, as each carried the other several times nearly to the top of the nest, and then sank down again oppressed by the weight of its burden, till, at length, after various efforts, the strongest prevailed, and was afterwards brought up by the hedge-sparrows.”

In order to enable the young Cuckoo to perform this curious feat, its back is very different in shape from that of ordinary birds, being very broad from the shoulder downwards, leaving a well-marked depression in the middle, on which the egg or young bird rests while it is being carried to the edge of the nest. In about a fortnight this cavity is filled up, and the young bird has nothing extraordinary in its appearance.

From its peculiar mode of foisting off its young upon other birds, its character would seem to be of a solitary nature. Such, however, is not the case, for at some periods of the year these birds may be seen in considerable numbers, playing with each other or feeding in close proximity. Upwards of twenty have been observed in a single field, feeding on the caterpillars of the burnet moth, and several communications have been addressed to sport journals in which the subject of natural history is discussed, relating similar occurrences. One of these

correspondents records a large assembly of Cuckoos seen by herself in the month of August, and another relates a curious anecdote of a number of Cuckoos, which he saw on the wing, playing over and near a large gray stone. It seems that these birds are very partial to prominent objects, such as bushes, tree-stumps, large stones, etc., and that they are fond of congregating in their vicinity.

The peculiar note of the Cuckoo is so well known as to need no particular description, but the public is not quite so familiar with the fact that the note changes according to the time of year. When the bird first begins to sing, the notes are full and clear; but towards the end of the season, they become hesitating, hoarse, and broken, like the breaking voice of a young lad. This peculiarity was noticed long ago by observant persons, and many are the country rhymes which bear allusion to the voice and the sojourn of the Cuckoo. For example:—

“ In April
Come he will.
In May
He sings all day.
In June
He alters his tune.
In July
He prepares to fly.
In August
Go he must ”

This rhyme is often slightly varied, as:—

“ In April Cuckoo sings her lay ;
In May she sings both night and day ;
In June she loses her sweet strain ;
In July she is off again.”

An old writer, John Haywood, who “flourished,” according to Mangnall, about 1580, has the following quaint and very graphic rhyme upon the voice of the Cuckoo at different periods of the year:—

“ In April the Cocoo can sing her song by rote.
In June oft time she cannot sing a note.
At first, koo, koo ; koo, koo ; sings till can she do.
At last, kooke, kooke, kooke ; six kookes to one koo.”

The voice of the female bird is quite distinct from that of the male, and has been compared to the sound made by pouring water out of a narrow-necked bottle, and to the quacking clutter of the dabchick.

Sometimes the Cuckoo has been known to sing at night, having been seen to perch in a tree and then to commence its song. Many such instances are recorded, as also of the Cuckoo's song heard very early in the season ; but in all such instances where the bird was not actually seen, great caution must be used in accepting evidence. For the note of the Cuckoo is so peculiar, and so easily imitated, that boys are often in the habit of hiding in the copses and behind hedges for the purpose of deluding people into the idea that the Cuckoo has arrived. There have even been instances where such delinquents have confessed their bad practices when they attained to mature years, and wrote on natural history themselves.

When the stomach of the Cuckoo is opened, it is found to be lined with brown hairs, which on investigation with the microscope have been found to be those of the long-haired caterpillars, such as the “woolly-bear,” *i. e.* the larva of the tiger moth (*Arctia caja*), on which the Cuckoo loves to feed.

In captivity it feeds on many substances, always preferring caterpillars and raw beef chopped fine. It also likes worms, hard-boiled eggs, flies, wasp-grubs, and similar food. According to some persons, the young Cuckoo is a very easy bird to rear ; while according to others it gives the greatest trouble. One writer goes so far as to say that he would sooner rear a baby single-handed than a Cuckoo. However this may be, the first winter is always a trying season to the young bird, and there are very few which get well through it.

In general appearance the Cuckoo bears some resemblance to a bird of prey, but it has little of the predaceous nature. It is rather curious that small birds have a tendency to treat the Cuckoo much as they treat the hawks and owls, following it wherever it flies in the open country, and attending it through the air.

The color of the plumage is bluish gray above, with the exception of the wings and tail, which are black, and barred with white on the exterior feathers. The chin, neck, and breast are ashen-gray, and the abdomen and under wing-coverts are white, barred with slaty-gray.

Sometimes the color varies from these tints, and a white specimen may occasionally be found. Yearling birds of both sexes are hair-brown above, barred profusely with brownish-red; the quill-feathers of the wing are reddish-brown, barred with white, while those of the tail are of the same dark tinge, but without the white bars, and spotted with white along the centre of the feathers. The whole of the under portions of the body are gray-white, barred with brown, and the short tail is tipped with white. A little white also appears on the tips of some of the feathers on the upper surface of the body. The total length of the adult bird is about fourteen inches. The female is rather smaller than her mate, and may be distinguished from the opposite sex by the brown bars upon her neck, and the brown tinge upon the back and wings.



COLUMBÆ.

DOVES AND PIGEONS.



THE large order of COLUMBÆ, or the Pigeon tribe, comes now under our notice. It contains very many beautiful and interesting birds ; but as its members are so extremely numerous, only a few typical examples can be mentioned in these pages.

All the Pigeons may be distinguished from the poultry, and the gallinaceous birds in general, by the form of the bill, which is arched towards the tip, and has a convex swelling at the base, caused by a gristly kind of plate which covers the nasal cavities, and which in some species is very curiously developed. In order to enable the parent birds to feed their young, the gullet swells into a double crop, furnished with certain large glands during the breeding season, which mingle their secretions with the food, and soften it, so that when the bird throws up the food after its fashion, to feed its young, the whole mass has acquired a soft and pulpy consistence, suitable to the delicate digestive powers of the tender young. Other peculiarities of form will be found in the Appendix to this volume.

In their habits, the Pigeons greatly resemble each other, mostly haunting trees, but sometimes preferring the soil as a hunting-ground. Generally, the family likeness between the Pigeons is sufficiently strong to enable even a novice to know a Pigeon when he sees it ; but there are one or two remarkable exceptions to this rule, such as the Dodo and the Tooth-billed Pigeons, birds which need careful examination to be recognized as belonging to the present order.

The powers of wing are generally very great, the Pigeons being proverbially swift and enduring ; but even this rule has its exceptions. They are found in almost all parts of the globe, being most plentiful in the warmer regions. In this country the colors of the Pigeons, although soft and pleasing, and in some portions of the bird, such as the neck, glowing with a changeful beauty, are not particularly striking for depth or brilliancy. But in the hotter regions of the world, especially towards the tropics, the Pigeons are among the most magnificent of the feathered tribes, their plumage being imbued with the richest colors, and often assuming very elegant forms.

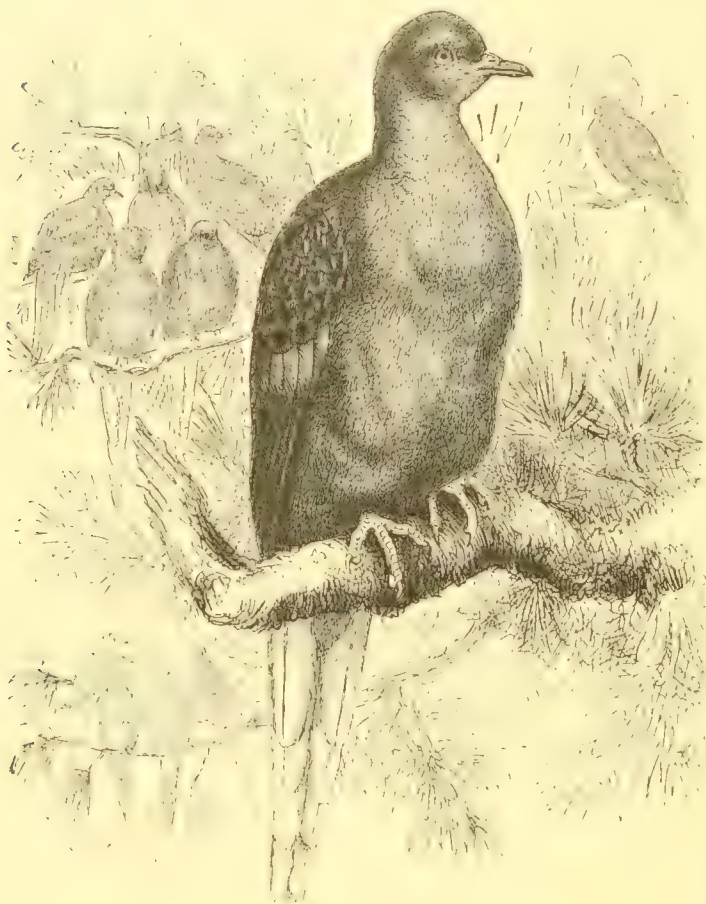
Our first example of this order is the OCEANIC FRUIT PIGEON.

The whole of the birds belonging to the genus *Carpophaga* are notable for the curious knob that is found upon the base of the upper mandible, and which only makes its appearance during the breeding season. During the rest of the year, the base of the beak is more flattened than is generally the case with the Pigeons ; but as soon as the breeding season approaches, a little swelling is observable in this part, which rapidly grows larger, until it assumes the appearance of a knob. Towards the end of the breeding season, the knob becomes smaller, and is gradually absorbed, leaving the bill in its former flattened condition.

This species is found in the Pelew and neighboring islands, and is a forest-loving bird, taking up its residence in the woods, where it finds abundance of food. The diet which this bird most favors is the soft covering of the nutmeg, popularly known as “mace,” and the flavor which this aromatic food imparts to the flesh is so peculiarly delicate, that the Oceanic

Fruit Pigeon is in great request for the table, and is shot by hundreds. During the nutmeg season, these Pigeons find such an abundance of food that they become inordinately fat, and are sometimes so extremely plump, that when they are shot, and fall to the ground, they burst asunder.

Setting aside the gastronomical properties of this bird, it is a most useful creature, being the means of disseminating far and wide the remarkable nutmeg-tree. The Pigeon being a bird of large appetite, swallows the nutmeg together with the mace, but only the latter substance is subject to digestion, the nutmeg itself passing through the system with its reproductive powers not only uninjured, but even improved.



PASSENGER PIGEON.—*Ectopistes migratorius*.

The sojourn within the body of the bird seems to be almost necessary in order to induce the nutmeg to grow ; and when planted by human hands, it must be chemically treated with some preparation before it will strike root.

The color of this species is as follows: The forehead, cheeks, and throat are grayish-white, and the rest of the head and the back of the neck are gray with a slaty blue wash. The back and upper portions of the body are light metallic green. The lower part of the throat and the breast are rusty gray, and the thighs and abdomen are deep brownish-red. The under surface of the tail is also green, but with a reddish gloss. The total length of the bird is about fourteen or fifteen inches.

AMONG the most extraordinary of birds, the PASSENGER PIGEON may take very high rank, not on account of its size or beauty, but on account of the extraordinary multitudes in which it sometimes migrates from one place to another. The scenes which take place during these migrations are so strange, so wonderful,

and so entirely unlike any events on this side of the Atlantic, that they could not be believed, but for the trustworthy testimony by which they are corroborated. To abridge or to condense the spirited narrations of Wilson and Audubon would be impossible, without losing, at the same time, the word-painting which makes their descriptions so exceedingly valuable ; and, accordingly, these well-known naturalists shall speak for themselves.

After professing his belief that the chief object of the migration is the search after food, and that the birds having devoured all the nutriment in one part of the country take wing in order to feed on the beech-mast of another region, Wilson proceeds to describe a breeding-place seen by himself in Kentucky, which was several miles in breadth, was said to be nearly forty miles in length, and in which every tree was absolutely loaded with nests. All the smaller branches were destroyed by the birds, many of the large limbs were broken off and thrown on the ground, while no few of the grand forest-trees themselves were killed as surely as if the axe had been employed for their destruction. The Pigeons had arrived about the tenth of April, and left it by the end of May.

"As soon as the young were fully grown, and before they left the nests, numerous parties of the inhabitants, from all parts of the adjacent country, came with wagons, oxen, beds, cooking utensils, many of them accompanied by the greater part of their families, and encamped for several days at this immense nursery. Several of them informed me that the noise in the woods was so great as to terrify their horses, and that it was difficult for one person to hear another speak without bawling in his ear.

"The ground was strewn with broken limbs of trees, eggs, and young squab pigeons which had been precipitated from above, and on which herds of hogs were fattening. Hawks, buzzards, and eagles were sailing about in great numbers, and seizing the squabs from their nests at pleasure; while from twenty feet upwards to the top of the trees, the view through the woods presented a perpetual tumult of crowding and fluttering multitudes of pigeons, their wings roaring like thunder, mingled with the frequent crash of falling timber. For now the axe-men were at work cutting down those trees which seemed to be most crowded with nests, and contriving to fell them in such a manner that in their descent they might bring down several others, by which means the falling of one large tree sometimes produced two hundred squabs, little inferior in size to the old ones, and almost one mass of fat.

"On some single trees upwards of one hundred nests were found, each containing *one* young only, a circumstance in the history of this bird not generally known to naturalists. It was dangerous to walk under these flying and fluttering millions, from the frequent fall of large branches, broken down by the weight of the multitudes above, and which, in their descent, often destroyed numbers of the birds themselves.

"I had left the public road to visit the remains of the breeding-place, near Shelbyville, and was traversing the woods with my gun, on my way to Frankfort, when, about one o'clock, the pigeons which I had observed flying the greater part of the morning northerly, began to return in such immense numbers as I never before had witnessed. Coming to an opening by the side of a creek called the Benson, I was astonished at their appearance.

"They were flying with great steadiness and rapidity, at a height beyond gunshot, in several strata deep, and so close together that could shot have reached them, one discharge would not have failed of bringing down several individuals. From right to left, as far as the eye could reach, the breadth of this vast procession extended, seeming everywhere equally crowded.

"Curious to determine how long this appearance would continue, I took out my watch to note the time, and sat down to observe them. It was then half-past one. I sat for more than an hour, but instead of a diminution of this prodigious procession, it seemed rather to increase both in numbers and rapidity; and anxious to reach Frankfort before night, I rose and went on. About four o'clock in the afternoon, I crossed the Kentucky river, at the town of Frankfort, at which time the living torrent above my head seemed as numerous and as extensive as ever. The great breadth of front which this mighty multitude preserved would seem to intimate a corresponding breadth of their breeding-place, which by several gentlemen who had lately passed through part of it, was stated to me at several miles."

A few observations on the mode of flight of these birds must not be omitted.

"The appearance of large detached bodies of them in the air, and the various evolutions they display, are strikingly picturesque and interesting. In descending the Ohio by myself in the month of February, I often rested on my oars to contemplate their aerial manœuvres.

"A column, eight or ten miles in length, would appear from Kentucky, high in air, steering over to Indiana. The leaders of this great body would sometimes gradually vary their course, until it formed a large bend of more than a mile in diameter, those behind tracing the exact route of their predecessors. This would continue sometimes long after both extremities were beyond the reach of sight; so that the whole, with its glittering undulations, marked a space on the face of the heavens resembling the windings of a vast and majestic river. When this bend became very great, the birds, as if sensible of the unnecessarily circuitous course they were taking, suddenly changed their direction, so that what was in column before became an immense front, straightening all its indentures until it swept the heavens in one vast and infinitely extended line.

“Other lesser bodies united with each other as they happened to approach, with such ease and elegance of evolutions, forming new figures, and varying them as they united or separated, that I was never tired of contemplating them. Sometimes a hawk would make a sweep on a particular part of the column, when, almost as quick as lightning, that part shot downwards out of the common track; but soon rising again, continued advancing at the same rate as before. This reflection was continued by those behind, who on arriving at this point dived down almost perpendicularly to a great depth, and rising, followed the exact path of those before them.”

Let us now see what Audubon has to say on this subject. The reader will remark the brilliant account given by Wilson, of the effects produced by the attack of a hawk on a flock. Audubon has also remarked the same circumstance, and says: “But I cannot describe to you the extreme beauty of their aerial evolutions when a hawk chanced to press upon the rear of a flock. At once, like a torrent, and with a noise like thunder, they rushed into a compact mass, pressing upon each other towards the centre. In these almost solid masses, they darted forward in undulating and angular lines, descended and swept close over the earth with inconceivable velocity, mounted perpendicularly so as to resemble a vast column, and when high, were seen wheeling and twisting within their continued lines, which then resembled the coils of a gigantic serpent.”

Writing of the breeding-places of these birds, the same author proceeds as follows:—

“One of these curious roosting-places on the banks of the Green River, in Kentucky, I repeatedly visited. It was, as is always the case, a portion of the forest where the trees are of great magnitude, and where there was little underwood. I rode through it upwards of forty miles, and found its average breadth to be rather more than three miles. My first view of it was about a fortnight subsequent to the period when they had made choice of it, and I arrived there nearly two hours before sunset.

“Few pigeons were then to be seen, but a great number of persons with horses and wagons, guns and ammunition, had already established encampments on the borders. Two farmers from the vicinity of Russelsville, distant more than a hundred miles, had driven upwards of three hundred hogs to be fattened on the pigeons that were to be slaughtered. Here and there the people employed in plucking and salting what had already been procured were seen sitting in the midst of large piles of these birds. Many trees two feet in diameter I observed were broken off at no great distance from the ground; and the branches of many of the largest and tallest had given way, as if the forest had been swept by a tornado. Everything proved to me that the number of birds resorting to this part of the forest must be immense beyond conception. As the period of their arrival approached, their foes anxiously prepared to receive them; some were furnished with iron pots containing sulphur—others with torches of pine-knots,—many with poles, and the rest with guns. The sun was lost to our view, yet not a pigeon had arrived. Everything was ready, and all eyes were gazing on the clear sky which appeared in glimpses amidst the tall trees.

“Suddenly there burst forth a general cry of ‘Here they come.’ The noise which they made, though yet distant, reminded me of a hard gale at sea, passing through the rigging of a close-reefed vessel. As the birds arrived and passed over me, I felt a current of air that surprised me. Thousands were soon knocked down by the pole-men; the birds continued to pour in; the fires were lighted, and a most magnificent as well as wonderful and almost terrifying sight presented itself. The pigeons arriving by thousands alighted everywhere, one above another, until solid masses as large as hogsheads were formed on the branches all round. Here and there the perches gave way with a crash, and falling on the ground destroyed hundreds of the birds beneath, forcing down the dense groups with which every stick was loaded.

“It was a scene of uproar and confusion; no one dared venture within the line of devastation; the hogs had been penned up in due time, the picking up of the dead and wounded being left for next morning’s employment. The pigeons were constantly coming, and it was past midnight before I perceived a decrease in the number of those that arrived. Towards the approach of day the noise in some measure subsided; long before objects were distinguishable

the pigeons began to move off in a direction quite different from that in which they had arrived the evening before, and at sunrise all that were able to fly had disappeared. The howlings of the wolves now reached our ears, and the foxes, lynxes, cougars, bears, racoons, and opossums were seen sneaking off, whilst eagles and hawks of different species, accompanied by a crowd of vultures, came to supplant them, and enjoy their share of the spoil."

The chief food of the Passenger Pigeon is beech-mast, but the bird feeds on numerous other grains and fruits, such as acorns, buckwheat, hempseed, maize, holly-berries, huckle-berries, and chestnuts. Rice is also a favorite article of food, and pigeons have been killed with rice still undigested in their stomachs, though the nearest rice plantation was distant several hundred miles. The amount of food consumed by these birds is almost incredible. Wilson calculates that, taking the breadth of the great column of pigeons mentioned above to be only one mile, its length to be two hundred and forty miles, and to contain only three Pigeons in each square yard (taking no account of the several strata of birds, one above the other), and that each bird consumes half a pint of food daily—all which assumptions are below the actual amount—the quantity of food consumed in each day would be seventeen million bushels. Audubon makes a similar calculation, allowing only two birds to the square yard.

Although these birds are found in such multitudes, there is only a single young one each time of hatching, though there are probably two or even three broods in a season. The young birds are extremely fat, and their flesh is very delicious, only, as during their stay every one eats pigeons all day and every day, they soon pall upon the taste. So plump are these birds, that it is often the custom to melt them down for the sake of their fat alone.

When they begin to shift for themselves they pass through the forest in search of their food, hunting among the leaves for mast, and appear like a prodigious torrent rolling along through the woods, every one striving to be in the front. "Vast numbers of them are shot while in this situation. A person told me that he once rode furiously into one of these rolling multitudes and picked up thirteen pigeons, which had been trampled to death by his horse's feet. In a few minutes they will beat the whole nuts from a tree with their wings, while all is a scramble, both above and below, for the same." The young, the males and females, have a curious habit of dividing into separate flocks.

One or two specimens of this bird have been taken in Europe, and one individual was shot in 1825. This species has bred in aviaries, and it is rather remarkable that the female made the nest while her mate performed the duties of hodman by bringing materials. The nest is very slight, being only composed of a few twigs rudely woven into a platform, and so loosely made that the eggs and young can be seen from below. In this instance the nest was begun and finished in the same day. The young bird was hatched after sixteen days.

The color of the Passenger Pigeon is as follows: The head, part of the neck and the chin are slate-blue, and the lower part and sides of the neck are also deep slate, "shot" with gold, green, and purplish-crimson, changing at every movement of the bird. The throat, breast, and ribs are reddish-hazel; the back and upper tail-coverts dark slaty-blue, slightly spotted with black upon the shoulders. The primary and secondary quill-feathers of the wings are black, the primary being edged and tipped with dirty white. The lower part of the breast is a pale purplish-red, and the abdomen is white. The long and pointed tail has the two central feathers deep black, and the rest white, taking a bluish tint near their bases, and being marked with one black spot and another of rusty-red on the inner webs. The beak is black, the eye fiery orange, and a naked space around it is purplish-red. The female is known by her smaller size, her oaken-brown breast and ashen neck, and the slaty hue of the space round the eyes. The total length of the adult male is about sixteen inches.

The extraordinary powers of flight possessed by the Passenger Pigeons enables them to pass over a wonderful extent of country in a very short time. Pigeons have been killed in the neighborhood of New York, with their crops full of rice, which they must have eaten in the rice-fields of Georgia or Carolina; these districts being the nearest in which they could possibly have gathered such food. It is estimated that these birds might easily cross to Europe in three days.

The Wild Pigeons inhabit a wide and extensive region of North America, on this side of the Rocky Mountains. They abound in Hudson's Bay, where they remain as late as December, and extend their range as far south as the Gulf of Mexico.

THE BAND-TAILED PIGEON (*Columba fasciata*) is a handsome species, inhabiting the Pacific side of the Rocky Mountains. Dr. Newberry met with this bird in numbers, and in many places, during his survey, and speaks of it as an attractive bird, about the size and with many of the habits of the domestic Pigeon. Its colors are ash above, inclining to olivaceous on the back, and a fine bluish cast on the rump. A narrow half-collar of white is across the upper part of the neck. Its length is about fifteen inches; its wings eight inches, and tail six.

THE WHITE-HEADED PIGEON (*Columba leucocephala*) is found in no other locality within the United States but Key West, Florida. It is common in the West Indies. It is exceedingly shy, affecting secluded places. It is a few inches shorter than the preceding. Its general color is a dark slate-blue; the primaries and tail darker; upper part of the head, from the bill to the nape, pure white; a triangular patch of dark maroon-purple on the occiput, and below it a semicircular cape, covering the nape, of metallic brassy-green, each feather distinctly bordered externally with velvety-black, producing a scaly appearance. The bill is a dark purple; the end light blue; iris, white; legs, deep lake-red.

There are two kinds of this Pigeon, known as the Baldpate in Jamaica, distinguished as the MOUNTAIN and the MANGROVE BALDPATE. They resort to the low mangrove swamps along the coast. Large numbers of squabs are taken for the market. The old birds are easily domesticated, but have a fondness for emancipation when opportunity offers.

This is an abundant species in Jamaica and in the small islands on the coast of Honduras, but has never been taken on the main land. They arrive in the southern Keys of Florida about the 20th of April. As they approach the land, they skim along the surface of the water, flying with great rapidity, in the same manner as the House Pigeon. When near land they rise about a hundred yards, flying in circles, as if to survey the country.

THE RED-BILLED DOVE (*Columba erythrina*) is a Southwestern species, inhabiting the Rio Grande country and Mexico, where it is very abundant, but secluded. Its flight is said to be exceedingly rapid. It is one of the handsomest of the race. The head and neck all around, breast, and a large patch on the middle and lesser wing-coverts, light chocolate-red, the latter deeper and more opaque-red; the middle of the back, scapulars, and tertials, olive; the rest of the body, wings, and tail, very dark slaty-blue; bill and legs, purple; eyes, purple. Its length is fourteen inches; wing, eight inches; tail, five and a half.

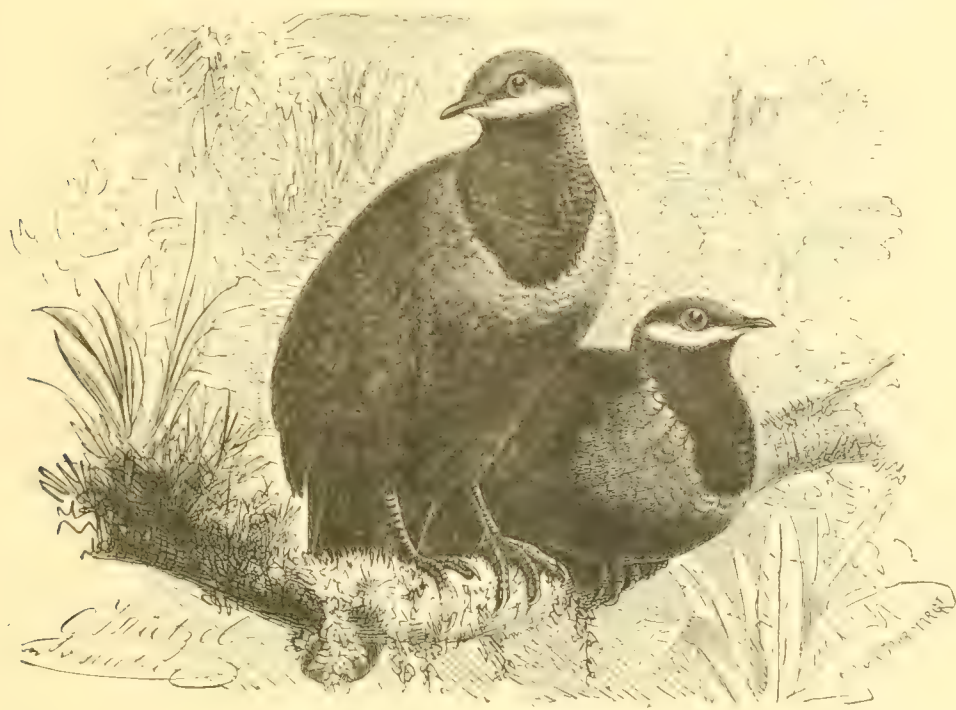
THE WHITE-WINGED DOVE (*Melopelia leucoptera*) is one species, only, of the genus, inhabiting Arizona and Lower California. Its general color is a fine ashy, with an olivaceous cast on the upper surface, the middle tail-feathers being decidedly brownish; occiput has a purplish tinge; a spot of black with steel-blue reflections below the ears; a large patch of white on the wings. The male has faint purplish-golden reflections on the sides of the neck. In Jamaica this is a very common species, living in the low country. It is not unfrequently kept as a pet, and proves quite easily domesticated.

THE ZENAIDA DOVE (*Zenaida amabilis*). This Dove is a West Indian species, visiting Key West and the other Florida Keys. Audubon found it in considerable numbers at Indian Key, where he says it arrives about the middle of April, and remains until October, when it returns to the West Indies. In habits this Dove is much like the Ground Doves. It is extremely gentle, and so tame as to be approached without exhibiting fear. Its notes are much like those of the Carolina Dove, but softer and more tender. It has been propagated in England successfully, and as a cage bird becomes quite tame. It is a reddish-olive in color generally, variously glossed with gray. Its length is about ten inches.

CAROLINA DOVE (*Zenaidura carolinensis*), called also the Common Dove, or Mourning Dove; in Louisiana named Ortolan. This is the most familiar of all our native Pigeons. It inhabits from the Atlantic to the Pacific. It is migratory in the Northern States, reaching New England about the first of April. In some parts of the country it seems to become partially domesticated. It is rapid in flight, and produces a peculiar whistling sound by its wings when flying. Its length is twelve inches and a fraction.

THE SCALY DOVE (*Scardafella inca*) inhabits the Rio Grande valley, Arizona, and Guatemala. There are only two species of this genus known. One inhabits South America. It breeds at Cape St. Lucas, where its nests are found in low trees or shrubs.

THE GROUND DOVE (*Chamæpelias passerina*) is common on the South Atlantic and Gulf coast; rarely found as far north as Washington. It is found also in Lower California, and in the West Indies, being confined to the sea-coast in every instance. Audubon describes this bird as having a low, easy flight, accompanied with a whistling sound similar to that of the other species. It naturally associates in groups of four or five, and shows an especial fondness for alighting on fences; yet it does not exhibit a dislike to visiting trees or low shrubbery. The ground is its natural resort—almost as naturally so as for the grouse. In the vicinity of Charleston, S. C., it is seen during the whole year. Its length is six and a quarter inches. Its iris is a beautiful orange-red, and its bill yellow.



BLUE-HEADED PIGEON.—*Sturnænas cyanocephala*.

THE KEY WEST PIGEON (*Geotrygon martinica*.) This bird was first observed by Audubon, who then considered Key West its only locality in the United States. It is common in the West Indies, and migrates to Key West, as a little farther towards cooler climate, in the spring or early summer. The habits of this bird are the same as of the Carolina Dove. It prefers shady dark recesses of the forest, particularly in the vicinity of ponds overhung by shrubbery. The length is about eleven inches; its wing, six.

Another species, called the MOUNTAIN DOVE, is found in South America, which, with the latter, comprise the genus.

THE BLUE-HEADED PIGEON (*Sturnænas cyanocephala*) is another of the West Indian species, which visits Key West, as the nearest point northward. Audubon found a few

specimens, but owing to their extremely shy disposition he did not obtain any. It exhibits a marked contrast to others we have noticed, in this particular. This one species comprises the entire genus. It is curiously like the quails in external appearance, and in some of its habits. It has a blue bill, with the fleshy parts at the base, carmine. The scales of the feet are carmine in color. Its length is about eleven inches.

THE STOCK-DOVE derives its name from its habit of building its nest in the stocks or stumps of trees. It is one of the European Pigeons, and is tolerably common in many parts of the other hemisphere.

It is seldom found far northward, and even when it does visit such localities, it is only as a summer resident, making its nest in warmer districts. As has already been mentioned, the nest of this species is made in the stocks or stumps of trees, the birds finding out some convenient hollow, and placing their eggs within. Other localities are, however, selected for the purpose of incubation, among which a deserted rabbit-burrow is among the most common. The nest is hardly worthy of the name, being a mere collection of dry fibrous roots, laid about three or four feet within the entrance, just thick enough to keep the eggs from the ground, but not sufficiently woven to constitute a true nest. In some places when the keepers discover a brood they make a network of sticks at the mouth of the hole, so that the young cannot escape, although they can be fed by the parents from without, and when they are sufficiently large and plump they are taken for the table.

Now and then the Stock-Dove takes up its residence under thick furze-bushes, especially those which have grown close to the ground, and into which little openings have been made by the rabbits. The voice of the Stock-Dove is rather curious, being a hollow rumbling or grunting kind of note, quite unlike the well-known cooing of the Ring-Dove.

The head, neck, and back and wing-coverts are bluish-gray, the primary quill-feathers of the wing taking a deeper hue, the secondaries being pearl-gray deepening at the tips, and the tertials being blue-gray with two or three spots. The chin is blue-gray, the sides of the neck slaty-gray glossed with green, and the breast purplish-red. The specific name of "*œnas*," or wine-colored, is given to the bird on account of the peculiar hue of the throat. The whole of the under surface is gray, and the tail-feathers are colored with gray of several tones, the outside feathers having the basal portion of the outer web white. The beak is deep orange, the eyes scarlet, and the legs and toes red. The total length is about fourteen inches, the female being a little smaller.

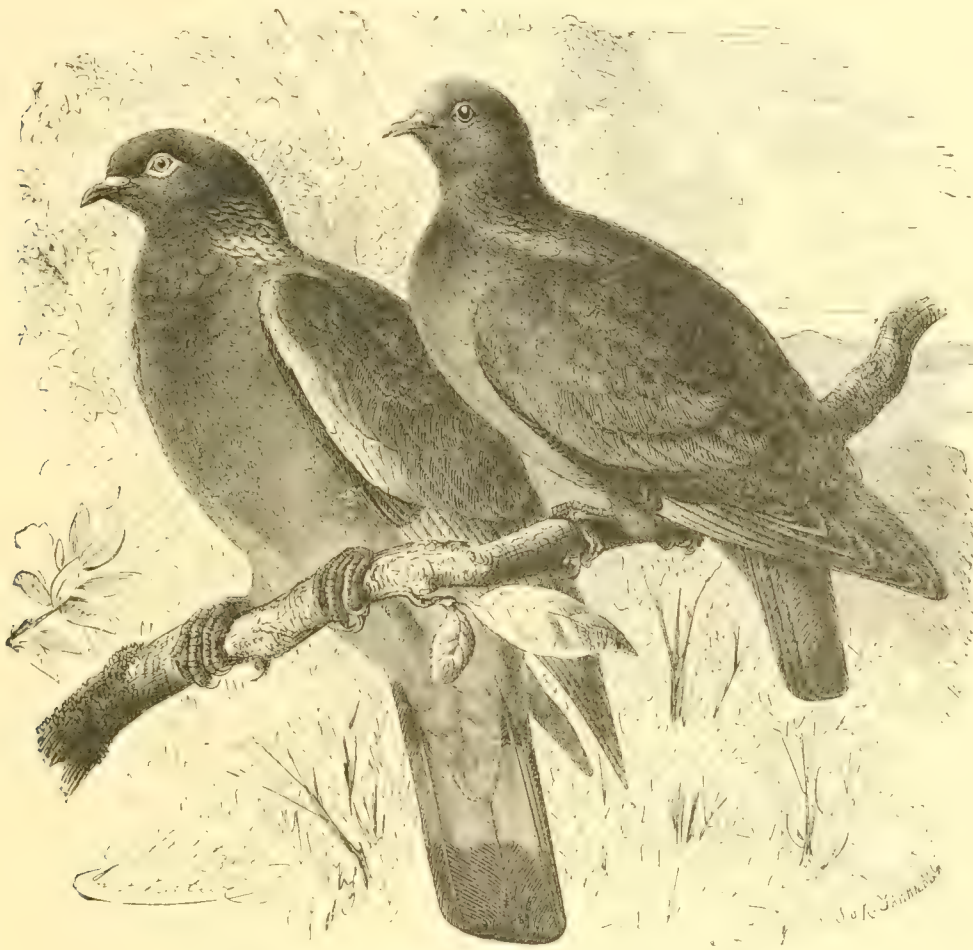
THE bird which now comes before our notice is familiar to all residents in the country under the titles of RING-DOVE, WOOD-PIGEON, WOOD-GUEST, and CUSHAT.

This pretty Dove is one of the commonest of the European birds, breeding in almost every little copse or tuft of trees, and inhabiting the forest grounds in great abundance. Towards and during the breeding season, its soft complacent cooing—coo-goo-roo-o-o-o! coo-goo-roo-o-o-o—is heard in every direction, and with a very slight search its nest may be found. It is a strange nest, and hardly deserving that name, being nothing more than a mere platform of sticks resting upon the fork of a bough, and placed so loosely across each other, that when the maternal bird is away, the light may sometimes be seen through the interstices of the nest, and the outline of the eggs made out. Generally the Ring-Dove chooses a rather lofty branch for its resting-place, but it occasionally builds at a very low elevation. I have found the nest of this bird in a hedge only a few feet from the ground, so low, indeed, that I could look down upon the eggs while standing by the hedge, and more like the work of the turtle-dove than of the Ring-Dove.

The eggs are never more than two in number, and perfectly white, looking something like hen's eggs on a small scale, save that the ends are more equally rounded. The young are plentifully fed from the crops of their parents, and soon become very fat. Just before they are able to fly they are held in great estimation for the table, and in some places ingenious boys are in the habit of going round to the Ring-Dove's nest while the young are still in their infantile plumage, tying a piece of string to their legs, passing it through the interstices of the

nest, and fastening it to the branch. The young birds are thereby prevented from escaping, and are sure to be at hand when wanted. Even when adult the Ring-Dove is a favorite article of food, and is shot by hundreds when they flock together in the cold weather. They also exhibit a decided partiality for certain roosting-places, and can be shot by waiting under the trees to which they have taken a liking.

The food of this Dove consists of grain and seeds of various kinds, together with the green blades of newly sprung corn, and the leaves of turnips, clover, and other vegetables. Quiet and harmless as it may look, the Ring-Dove is a wonderful gormandizer, and can consume great quantities of food. The crop is capacious to suit the appetite, and can contain a singular amount of solid food, as indeed seems to be the case with most of the Pigeon tribe, so that when the birds assemble together in the autumn, the flocks will do great damage to the farmer.

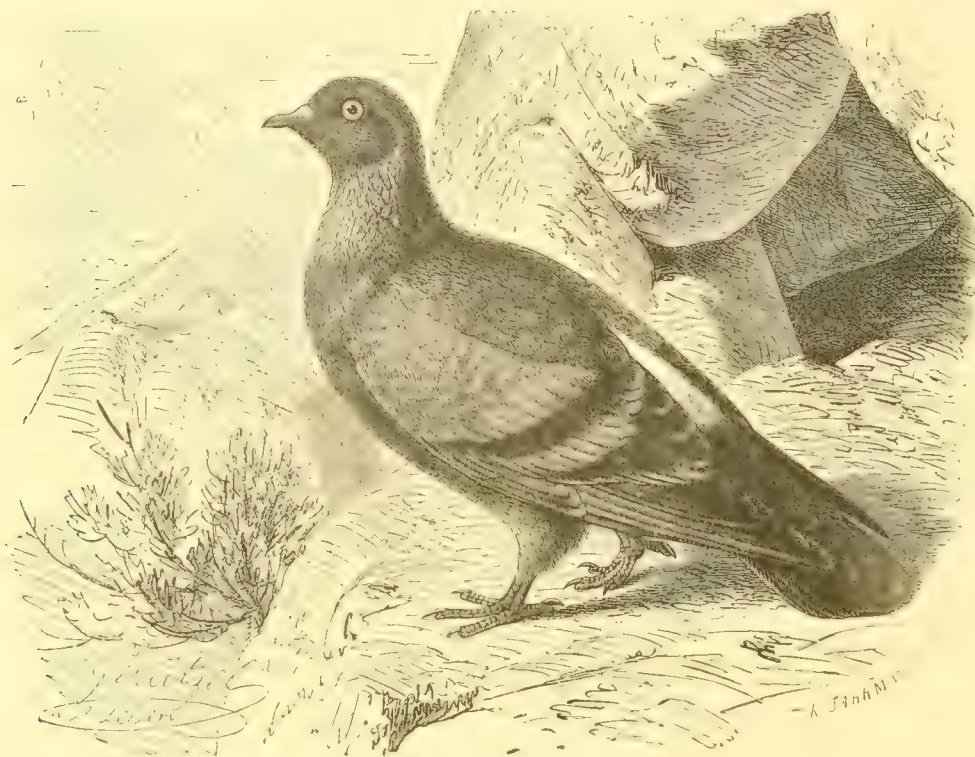


RING-DOVE and STOCK-DOVE.—*Columba palumbus* and *oenus*.

The Ring-Dove may be easily known by the peculiarity from which it derives its name, the feathers upon the side of the neck being tipped with white so as to form portions of rings set obliquely on the neck. The head, chin and part of the neck are blue-gray; the remainder of the neck and the breast are purple-red, and the bare skin about the base of the beak is nearly white. The upper parts of the body are also blue-gray, but of a more slaty hue than the head and neck. The wings are also of the same dark hue, the primary quill-feathers having black shafts and a narrow band of white extending along the edges of their outer webs. The wing-coverts are mostly blue-gray, but some of the feathers are more or less white, so that when the bird spreads its wings they form a very bold white patch, but when the wings are closed the white feathers of the coverts only form a line along the top of the wing. The tail

is marked with several shades of gray, and the abdomen is soft pearly-gray ; the beak is warm orange, and the eyes topaz-yellow. It is a larger bird than the preceding species, being about seventeen inches in length.

THE many varieties of size, form, and color afford an excellent example of the wonderful variations of which animals are susceptible under certain circumstances. Different as are the DOMESTIC PIGEONS, they all are modifications of the common BLUE ROCK-PIGEON, and if permitted to mix freely with each other, display an inveterate tendency to return to the original form, with its simple plumage of black bars across the wing, just as the finest breeds of lop-eared rabbits will now and then produce upright-eared young.



BLUE ROCK-PIGEON.—*Columba livia*.

The Rock-Dove derives its popular name from its habit of frequenting rocks rather than trees, an idiosyncrasy which is so inherent in its progeny, that even the domestic Pigeons, which have not seen anything except their wooden cotes for a long series of generations, will, if they escape, take to rocks or buildings, and never trouble themselves about trees, though they should be at hand. Some years ago, one of my friends lost all his Pigeons, by their gradual desertion of the loft in which they and their progenitors had been born, in favor of a tower, where they finally took up their residence in amiable proximity to multitudinous jack-daws, and several owls, and may be seen hovering about the towers, but always remaining near its summit.

This species seems to have a very considerable geographical range, for it is common over most parts of Europe, Northern Africa, the coasts of the Mediterranean, and has even been found in Japan.

As a general rule, any one who wants Pigeons about his house, and is not particular about the breed, can obtain them without the least trouble, by getting a good cote put up on his premises, and painting it white. The Pigeons are sure to be attracted by the glittering object, and will take possession of it spontaneously. I think that in many cases the cotes are deserted by the birds because they are left so long uncleansed, and are made on too small a scale. Among rocks or ruins, cleanliness is no such great matter, because there is plenty of air, and

the birds can change their places freely ; but in the case of the wooden cotes, the space is very limited, and the ventilation almost reduced to a nullity. Vermin, too, swarm in such places, and the birds show their good sense in getting away from so unhealthy a situation. The cotes should always be well cleaned at intervals, and the owner will be repaid by the health and rapidly increasing number of his birds.

In a domesticated state, although it is better to feed them at home and so keep them from straying, they will always forage for themselves and young without any assistance, a flight of ten miles or so being a mere nothing to these strong-winged birds. Indeed, the Pigeons that inhabit the Hague are known to cross the sea as far as the coast of Norfolk for the sake of feeding on the vetches.

The color of the Rock-Dove is as follows : The head is gray, and the neck of the same color, but "shot" with purple and green. The chin is blue-gray, and the throat changeable green and purple. The upper surface of the body is also gray, but of a different tone ; the greater coverts are barred with black at their tip, forming a decided band across the wing ; the tertials are also tipped with black, and another black band crosses the wing a little below the first-mentioned bar. These conspicuous black bars are difficult to eradicate from the domestic breeds, and are always apt to make their appearance most unexpectedly, and annoy the fancier greatly. The lower part of the back is pure white, the upper tail-coverts are pearl-gray, and the breast and abdomen of the same hue. The total length of this bird is not quite a foot.

From this stock, the varieties that have been reared by careful management are almost innumerable, and are so different in appearance that if they were seen for the first time, almost any systematic naturalist would set them down as belonging not only to different species, but to different genera. Such, for example, as the pouter, the jacobin, the trumpeter, and the fantail, the last-mentioned bird having a greater number of feathers in its tail than any of the others.

As this work is not intended to be of a sporting or "fancy" character, a description of the various fancy Pigeons cannot be given. But the "homing" faculty of this bird, and the use to which it has been put, is too important to be passed over without a notice.

It has long been known that Pigeons have a wonderful power of finding their home, even if taken to great distances, and the mode by which the birds are enabled to reach their domiciles has long been the object of discussion, one party arguing that it is an instinctive operation, and the other, that it is entirely by sight. In my opinion the latter party have the better of the argument, though perhaps the element of instinct ought not wholly to be omitted. I have been told by those who have hunted on vast plains, where no object serves as a guide, that the only way to get safely back is to set off on the homeward track without thinking about it, for that when a man begins to exercise his reason, his instinct fails him in proportion, and unless he should be furnished with a compass, he will probably be lost.

Still, that the sense of sight is the principal element cannot, I think, be denied. For in training a bird, the instructors always take it by degrees to various distances, beginning with half a mile or so, and ending with sixty or seventy miles in the case of really good birds, which will travel from London to Manchester in four hours and a half. In foggy weather the birds are often lost, even though they have to pass over short distances, and when a heavy fall of snow has obliterated their landmarks and given the country an uniform white coating, they are sadly troubled in finding their way home. The fancy Carrier Pigeon, with the large wattles on the beak, is said to be no very good messenger, the trainers preferring the Belgian bird, with its short beak, round head, and broad shoulders.

It is a curious, but a well ascertained fact, that the accuracy of Pigeon flight depends much on the points of the compass, although each individual bird may have a different idiosyncrasy in this respect. Some birds, for example, always fly best in a line nearly north and south, while others prefer east and west as their line of flight. This remarkable propensity seems to indicate that the birds are much influenced by the electric or magnetic currents continually traversing the earth. When starting from a distance to reach their home, these

Pigeons rise to a great height, generally hover about for a while in an undecided manner, and then, as if they had got their line, dart off with an arrowy flight. Missives written on very thin paper and rolled up tightly, are secured to the bird in such a way that they will not be shaken off by the flapping of the wings, or encumber the bird in its flight; and before the introduction of the electric telegraph, this mode of correspondence was greatly in use, mostly in political or sporting circles.

THE splendid TOP-KNOT PIGEON is one of the handsomest of the tribe, and in any collection of birds would be one of the most conspicuous species.

It is a native of Southern and Eastern Australia, and, according to Mr. Gould, is most plentifully found in the bushes of the Illawarra and Hunter rivers. The powerful feet and general structure point it out as an arboreal bird, and it is so exclusively found in the trees that it will not even perch among the underwood, but must needs take its place on the branches of lofty trees. When perched it sits boldly and uprightly, having an almost hawk-like air about it.

It is a gregarious bird, assembling in large flocks, and being very fond of constant proximity to its neighbors, whether it be swiftly flying through the air, or quietly perched upon a branch. When a flock of Top-knot Pigeons directs its flight towards a tree, the rushing sound of wings can be heard at a considerable distance, and when the birds perch simultaneously upon the boughs, bending them down with their weight, or fluttering their wings and displaying their beautiful crests, they present a very animated scene. Their wings are proportionately powerful to their feet, and they have a custom of ascending high into the air and taking very long flights, packed so closely together that the spectator involuntarily wonders how they can move their wings without striking their companions.

The food of this bird consists mostly of fruits, and it is very fond of the wild fig and the berries of the cabbage palm. Its throat is wonderfully capacious, and Mr. Gould says it could swallow a walnut without inconvenience. Fortunately for itself, it is not good eating, the flesh being dry and coarse.

The crest of the forehead and top of the head, together with the hackle-like feathers of the throat and breast, are silver-gray, showing the darker hues on the breast. On the back of the head the crest is of a ruddy rust color. From the eye to the back of the head runs a dark streak shaded by the crest. The upper surface of the body is dark slaty-gray, and the primaries and secondaries, together with the edge of the wing, are black. The tail is gray of two shades, having a broad band of black across the centre, and the extremity deeply tipped with the same dark hue. The under surface is silver-gray like the breast. The eye is fiery orange, surrounded with a narrow crimson line; the base of the bill is blue and the remainder red, and the feet are purplish-red. The length of this fine bird is about seventeen inches.

THE world-famed TURTLE-DOVE is, although a regular visitor of northern countries, better known by fame and tradition than by actual observation. This bird has, from classic time until the present day, been conventionally accepted as the type of matrimonial perfection, loving but its mate, and caring for no other until death steps in to part the wedded couple. Yet it is by no means the only instance of such conjugal affection among the feathered tribes, for there are hundreds of birds which can lay claim to the same excellent qualities, the fierce eagle and the ill-omened raven being among their number.

The Turtle-Dove seems to divide its attention pretty equally between Africa and England, pausing for some little time in southern Italy as a kind of half-way house. It arrives in England about the beginning of May, or perhaps a little earlier, in case the weather be warm, and after resting for a little while, sets about making its very simple nest and laying its white eggs. The nest of this bird is built lower than is generally the case with the Wood-Pigeon, and is usually placed on a forked branch of some convenient tree, about ten feet or so from the ground. Both parents aid in the duties of incubation, as they ought to do, and both

are equally industrious in the maintenance of their small family. The eggs are laid rather late in the season, so that there is seldom more than a single brood of two young in the course of the year.

The Turtle-Dove is far more common in the southern than in the northern countries, and I have reason to believe that in Derbyshire, where I was greatly fond of bird-nesting for some years, it is not of very frequent occurrence, at least as far as personal experience goes, which, however, is only of a negative character in this instance. The white eggs are rather more sharply pointed than those of the Wood-Pigeon, but all the English Pigeons' eggs are much alike and can with difficulty be distinguished from each other.



TURTLE-DOVE.—*Turtur vulgaris*.

The food of the Turtle-Dove mostly consists of seeds, such as corn, peas, rape, and similar seeds.

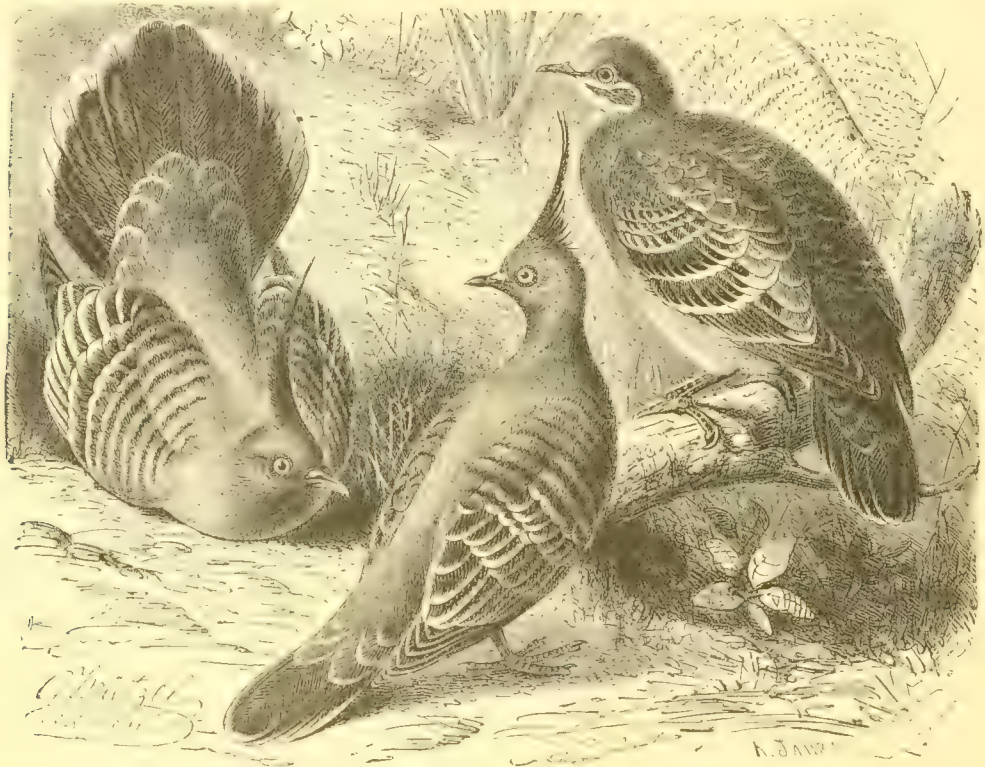
It is a bird of strong flight, and on its migrating journeys prefers to travel in company, associating in little flocks of ten or twelve. The end of August and September are the periods most in favor for the annual emigration.

The Turtle-Dove may be readily known by the four rows of black feathers tipped with white, which are found on the sides of the neck. The top of the head is ashen-slate, deepening into a browner hue on the back of the neck. The chin and neck are pale brown, tinged with purple upon the breast. The upper surface of the body is pale brown mottled with a darker hue, and the wing-coverts are another shade of brown edged with warm, ruddy chestnut. The quill-feathers of the wing are brown, and the upper tail-coverts are also brown with a slight ruddy tinge. The two central tail-feathers are of the same color, and the remaining feathers are dark brown tipped with white. Both edges of the tail are also white. The

abdomen and under tail-coverts are white. The eye is chestnut, and under it there is a little patch of bare pink skin; the legs and toes are brownish-yellow, and the beak is brown. The young birds of the year are differently shaded with brown; the head is wholly of that color, the wing-coverts are tipped with yellowish-white, and the quill-feathers of the wing are edged with a rusty hue. The tail, too, is without the white that distinguishes the adult bird. The total length of this species is rather more than eleven inches.

THE little CRESTED PIGEON, although not so conspicuous as some of its relations, is one of the most elegant in form and pleasing in color among this tribe.

It is a native of central Australia, and, according to Mr. Gould, is fond of haunting the marshy ground by the side of rivers and lagoons, and there assembling in large flocks. The



CRESTED PIGEON and BRONZE-WING PIGEON.—*Phaps topophotes* and *chalcoptera*.

gregarious propensities of this bird are indulged to an extent that seems almost ridiculous, for a large flock of Crested Pigeons will fly to the same tree, sit closely packed upon the same branch, and at the same moment descend in a mass to drink, returning in a similar manner to their perch. The flight of this bird is strong, and rather curiously managed. When it starts from the tree on which it is sitting, it gives a few quick strokes with its wings, and then darts off on steady pinion with an arrowy flight. When it settles, it flings up its head, erects its crest, and jerks its tail over its back, so that the crest and tail nearly touch each other. Its nest is, like that of most Pigeons, made of little twigs, and placed on the low forking branch of some convenient tree. While sitting on the nest, or perching quietly on the bough, the crest lies almost upon the back, and from below is hardly distinguishable from the rest of the plumage.

The head, face, and most of the under portions are pearl-gray, the long slender crest being jetty black, and the sides of the neck tinged slightly with pink. The back of the neck, the back, flanks, and both tail-coverts are light brown; the feathers at the insertion of the wing are buff, crossed with black nearer their tips, and the great coverts are shining bronze-green edged with white. The primary feathers of the wing are brown, some partially edged with brownish-white, and the rest with pure white. The secondaries are brown in their inner webs.

and their outer webs are bronzy-purple at the base, tipped with brown, and edged with white. The two central feathers of the tail are brown, the rest are blackish-brown, with a green gloss on their outer webs and tipped with white. The bill is olive-black, deepening at the tip, the feet are pink, and the eye orange set in a pink orbit.

THE BRONZE-WING PIGEON is also an Australian bird, and with the exception of the Wonga-Wonga Pigeon, hereafter to be described, is the most celebrated for the delicacy of its flesh.

It is a plump, and readily fattening bird, weighing about a pound when in good condition. The breast is particularly large, as may be supposed from the great force of its wings, and when the bird is fat, is the most esteemed portion. To the Australian traveller the Bronze-wing is invaluable, as it is a great water-drinker, and its flight will direct the thirsty wanderer to the stream or spring. Mr. Gould, who has had long experience of this as well as of many other birds, gives the following interesting account of its habits:—

“Its amazing powers of flight enable it to pass in an incredibly short space of time over a great expanse of country, and just before sunset it may be observed swiftly winging its way over the plains or down the gullies to its drinking place.

“During the long drought of 1839–40, when I was encamped at the northern extremity of the Brezi range, I had daily opportunities of observing the arrival of this bird to drink; the only water for miles, as I was assured by the natives, being that in the immediate vicinity of my tent, and that was merely the scanty supply left in a few natural basins in the rocks, which had been filled by the rains of many months before. This peculiar situation afforded me an excellent opportunity for observing not only the Bronze-wing, but many other birds inhabiting the neighborhood. Few, if any, of the true insectivorous or fissirostral birds came to the water holes, but, on the other hand, those species that live upon grain and seeds, particularly the parrots and honey-eaters (*Trichoglossi* and *Meliphagi*), were continually rushing down to the edges of the pools, utterly regardless of my presence, their thirst for water quite overcoming their sense of danger; seldom, if ever, however, did the Bronze-wing make its appearance during the heat of the day; but at sundown, on the contrary, it arrived with arrow-like swiftness, either singly or in pairs.

“It did not descend at once to the edge of the pool, but dashed down to the ground at about ten yards’ distance, remained quiet for a short time, then walked leisurely to the water, and after taking libations deep and frequent, winged its way to its roosting-place for the night. With a knowledge, therefore, of the habits of this bird, the weary traveller may always perceive when he is in the vicinity of water; and however arid the appearance of the country may be, if he observes the Bronze-wing wending its way from all quarters to a given point, he may be certain to procure a supply of food and water. When rain has fallen in abundance, and the rivers and lagoons are filled not only to the brim, but the water has spread over the surface of the surrounding country, the case is materially altered; then the Bronze-wing and many other birds are not so easily procured, the abundant supply of the element so requisite to their existence, rendering it no longer necessary that they should brave every danger in procuring it.”

This Pigeon does not assemble in flocks, but in many parts of the country is so plentiful and is so attached to certain localities that forty or fifty may be killed in a day after the breeding season, when it is in best condition. It feeds almost invariably on the ground, its diet consisting chiefly of leguminous seeds. The nest is a frail structure of twigs, rather more hollowed than is usually the case with the houses of Pigeons, and is placed on the low forking branch of a gum-tree near water. The bird is presumed to undergo a partial migration.

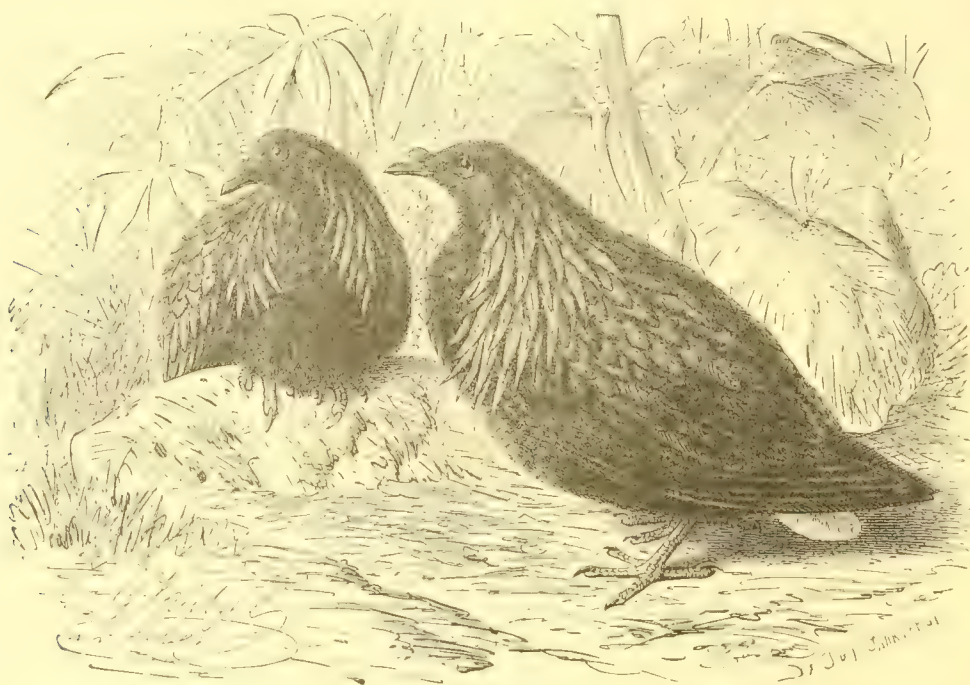
In color, the forehead is buff, the head is dark brown changing to deep plum color at the sides, the sides of the neck are gray, and there is a white waved line under the eye, and running partly down the chin. The upper surface of the body is dark brown. The coverts are marked with bronze-green spots, and the tertiaries have a large oblong shining green spot, edged with buff. The two central feathers of the tail are brown, and the rest gray, banded with

black near the tip. The breast is purple-brown, fading into gray on the abdomen. The eyes are reddish-brown, and the legs and feet crimson.

OF all this group of birds, the WONGA-WONGA PIGEON is the most celebrated for the whiteness, plumpness, and delicacy of its flesh, which, when eaten with bread sauce, is of such remarkable excellence, that the remembrance always excites the liveliest reminiscences in those who have partaken of so great a dainty.

The Wonga-Wonga Pigeon is a native of Australia, but is not spread generally over the country, being found mostly, if not wholly, among the bushes along the coast of New South Wales, or the sides of the hills of the interior. According to Mr. Gould, it inhabits the same district as the bush turkey, the satin bower-bird, and the lyre-bird. It lives mostly on the ground, feeding upon the stones and seeds of fallen fruit. When disturbed, it suddenly rises from the ground with a loud whirring rush like that of the pheasant, and, like that bird, rather startles the novice with the noise. It does not maintain a long flight; but either directs its course to a neighboring tree, or again settles upon the earth.

In color it is a very conspicuous bird. The forehead and chin are white, and a jetty-black line passes from the eye to the base of the bill. The sides of the head are gray, the back and upper surface are slate-gray, and the chest is deep blackish-gray, with a very broad white band crossing the chest and running up the sides of the neck. The abdomen is white, the under coverts dark brown tipped with buff, and the flanks are also white, but agreeably diversified with a bold black spot near the tip of each feather. The beak is red tipped with black, the eyes are dark brown with pink orbits, and the legs are bright pink.



NICOBAR PIGEON.—*Callenas nicobarica*.

THE NICOBAR PIGEON may fairly be reckoned among the more magnificent species belonging to the Pigeon tribe; the long-pointed feathers of the neck and shoulders glowing with resplendent green, bronze, and steely-blue, and having a peculiarly attractive effect as they droop towards the ground, their loose points waving in the wind, and their hues changing with every movement. Like others of the sub-family to which it belongs, it is mostly a terrestrial bird. As its name imports, it is most commonly found in Nicobar; but it also inhabits Java, Sumatra, and many neighboring islands.

The head of this Pigeon is slaty-blue, with a purplish cast, which is more conspicuous in

certain lights. The beautiful long-pointed feathers of the neck are greatly like the hackles of the game-cock, except that they hang lower on the neck. Their color is rich, refulgent green, deepening into a warm copper when the light falls obliquely upon them, and the wing-coverts are of the same hue, and pointed after a similar fashion. The back and whole of the upper surface is glowing green, with bronze and steel-blue reflections, and the under surface partakes of the same coloring, but without its peculiar resplendence. The short, square tail is pure white. It is rather remarkable that in the breeding season a rounded, fleshy knob makes its appearance upon the upper mandible, similar to that which has already been noticed in the Fruit Pigeon. The total length of this bird is about fourteen inches.

THE splendid CROWNED PIGEON is indisputably the most conspicuous of all its tribe; its great size and splendid crest rendering it a most striking object, even at a considerable distance.



CROWNED PIGEON.—*Columba coronata*.

So large and so un-pigeon-like is this bird, that few on first seeing it would be likely to determine its real relations to the rest of the feathered race, and would be more likely to class it among the poultry than the pigeons. If, however, the reader will lay a card upon the crest so as to expose only the head, he will see that the general outline of the head and beak is clearly that of a Pigeon. It is a native of Java, New Guinea, and the Moluccas.

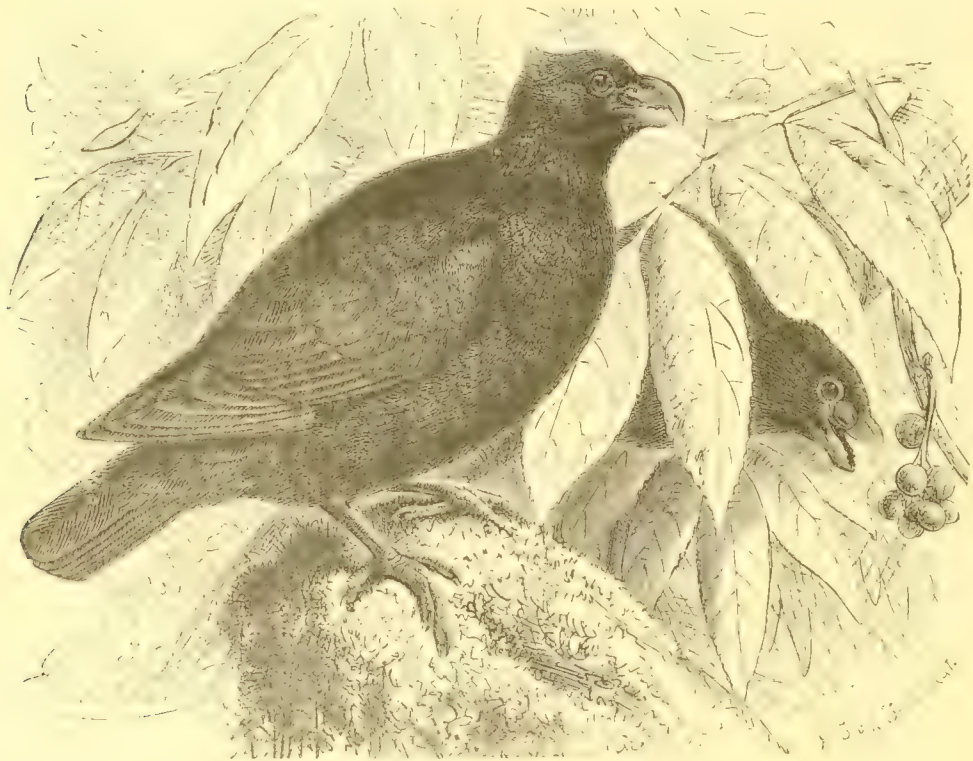
The manners of this splendid bird are very curious and interesting. Their walk is quite of a royal character, stately and majestic, and well according with the beautiful feathered crown which they bear upon their heads. The crest seems to be always held expanded. They have a quaint habit of sunning themselves upon the hot pavement of their prison by lying on one side, laying the head flat on the ground, tucking the lower wing under them, and

spreading the other over their bodies so as to form a very shallow tent, each quill-feather being separated from its neighbor, and radiating around the body. Sometimes the bird varies this attitude by stretching the other wing to its full length, and holding it from the ground, at an angle of twenty degrees or so, as if to take advantage of every sunbeam and every waft of air.

While lying in this unique attitude, it might easily pass at a little distance for a moss-covered stone, a heap of withered leaves, or a rugged tree-stump, with one broken branch projecting to the side. No one would think of taking it for a bird. Unfortunately, it is a difficult matter to take a sketch of the bird while thus reposing, for there are so few salient points that a very careful outline is needed, and its companions are sure to come and peck it up before the sketch can be concluded.

The cry of this bird is loud and sonorous, and not very easy of description. Some authors compare it to the gobbling of a turkey-cock, but I can perceive no resemblance to that sound. It is more of a loud, hollow boom, than anything else, a kind of mixture between a trombone and a drum, and every time that the bird utters this note, it bows its head so low that the crest sweeps the ground.

The nest of the Crowned Pigeon is said to be made in trees, the eggs being two in number, as is generally the case with this group of birds. Its flesh is spoken highly of by those who have eaten it. The general color of this bird is a deep and nearly uniform slate-blue; the quill-feathers of the wing and tail being very blackish ash, and a patch of pure white and warm maroon being found on the wing.



TOOTH-BILLED PIGEON.—*Didunculus strigirostris*.

In the Samoan islands of the Pacific is found a bird of extreme rarity of form, which is, as far as is known, unique among the feathered tribes that now inhabit the earth. I say now inhabit, because in former days, when the Dodo was still in existence, that remarkable and ungainly bird presented a form and structure greatly similar to those of the TOOTH-BILLED PIGEON.

On account of its close relationship with the Dodo, it has received from some systematic zoologists the generic name of *Didunculus*, or Little Dodo, while others have given it the title of *Gnathodon*, or Tooth-jaw, in allusion to the structure of its beak. The food of this bird

consists largely of the soft bulbous roots of several plants. The whole contour of the Tooth-bill is remarkable, and decidedly quaint; its rounded body seeming hardly in accordance with the large beak, which is nearly as long as the head, and is greatly arched on the upper mandible. The lower mandible is deeply cleft into three distinct teeth near its tip.

In color it is rather a brilliant bird. The head, neck, breast, and abdomen are glossy greenish-black, and upon the shoulders and the upper part of the back the feathers are velvety-black, each having a crescent-shaped mark of shining green near its extremity. The rest of the back, the wings, tail, and under tail-coverts are deep chestnut. The primary and secondary quill-feathers of the wing are grayish-black, and the large arched bill is orange. The total length of this bird is about fourteen inches.

THE DODO.

THE position held by the celebrated Dodo among birds was long doubtful, and was only settled in comparatively late years by careful examination of the few relics which are our sole and scanty records of this very remarkable bird.

For many years the accounts given by the early voyagers of the Dodar, or Walgh Vögel, found in the Mauritius and other islands, were thought to be merely fabulous narratives, a mental reaction having set in from the too comprehensive credulity of the previous times; and the various portraits of the Dodo to be found in the books of travel were set down as examples, not of the Dodo, but of the inventive faculties possessed by the authors. Truth, however, stood its own ground, as it always will do, and steadily withstood the batteries of negative reasonings that were brought to bear on the subject. An entire bird was quietly lodged in a museum at Oxford; portions of other specimens made their way to Europe among the curiosities which sailors are so fond of bringing home, and there is every reason to believe that a living example of this bird was exhibited in Holland.

It is curious that, but for a code of far-seeing regulations, providing that when the stuffed skin of a bird was so far decayed as to be useless as a specimen, the head and feet should be preserved, our best and most perfect relics of the Dodo would have been burned as useless rubbish. The specimen at Oxford was suffered to fall into decay, no one seeming to be aware of its priceless value, and when the skin was destroyed, the head and feet were laid aside and put away with other objects, among which they were afterwards discovered to the great joy of the finder. These were sufficiently perfect to prove the real existence of the bird, and the correctness with which it had been depicted by many draughtsmen; some portraits being of the rudest description, while others were the work of eminent artists, and most valuable for their high finish and accuracy of detail. The position of the bird among the feathered tribes was long doubtful, and it was provisionally placed between the ostriches and bustards, until, after a careful examination of the relics, it was found to belong to the pigeon tribe. This decision received a valuable confirmation in the discovery of the tooth-billed pigeon, just described.

For further information respecting the anatomical and scientific details of this bird, the reader is referred to Strickland and Melville's instructive and interesting work on the subject.

Many of the earlier travellers have spoken of the Dodo—a name, by the way, corrupted from the Dutch term *Dod-aers*—and their accounts are as quaint as the bird which they describe. For example, Bontius writes as follows: “The Dronte, or *Dod-aers*, is for bigness of mean size between an ostrich and a turkey, from which it partly differs in shape and partly agrees with them, especially with the African ostriches, if you consider the rump, quills, and feathers; so that it was like a pigmy among them if you regard the shortness of its legs.

“It has a great ill-favored head, covered with a kind of membrane, resembling a hood; great black eyes; a bending, prominent; fat neck; an extraordinary long, strong, bluish-white bill, only the ends of each mandible are a different color, that of the upper black, that

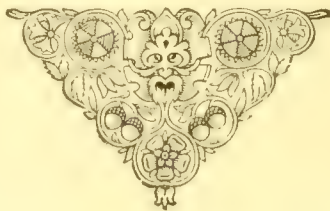
of the nether yellowish, both sharp-pointed and crooked. Its gape, huge wide, as being naturally very voracious. Its body is fat and round, covered with soft gray feathers after the manner of an ostrich's; in each side, instead of hard wing-feathers or quills, it is furnished with small soft-feathered wings, of a yellowish ash color; and behind, the rump, instead of a tail, is adorned with five small curled feathers of the same color. It has yellow legs, thick, but very short; four toes in each foot; solid, long, as it were scaly, armed with strong black claws.

"It is a slow-paced and stupid bird, and which easily becomes a prey to the fowlers. The flesh, especially of the breast, is fat, esculent, and so copious that three or four Dodos will sometimes suffice to fill one hundred seamen's bellies. If they be old, or not well boiled, they are of difficult concoction, and are salted and stored up for provision of victual. There are found in their stomachs stones of an ash color, of divers figures and magnitudes, yet not bred there, as the common people and seamen fancy, but swallowed by the bird; as though by this mark also nature would manifest that these fowls are of the ostrich kind, in that they swallow any hard things though they do not digest them."

Other travellers, such as Leguat and De Bry, agree with Bontius in his description of the bird, and coincide in his opinion of the excellence of its flesh; but one writer, Mr. T. Herbert, who visited the Mauritius about 1625, differs greatly in his estimation of the value of the Dodo as an article of food. In his book of travels, which is perhaps the quaintest and raciest to be found among such literature, he speaks as follows of this bird:—

"The Dodo, a bird the Dutch call Walghvogel, or Dod Eersen; her body is round and fat, which occasions the slow pace, or that her corpulencie, and so great as few of them weigh less than fifty pound: meat it is with some, but better to the eye than stomach, such as only a strong appetite can vanquish. . . . It is of a melancholy visage, as sensible of nature's injury in framing so massie a body to be directed by complimental wings, such, indeed, as are unable to hoise her from the ground, serving only to rank her among birds. Her traine, three small plumes, short and disproportionable, her legs suiting to her body, her pounces sharpe, her appetite strong and greedy. Stones and iron are digested; which description will better be conceived in her representation."

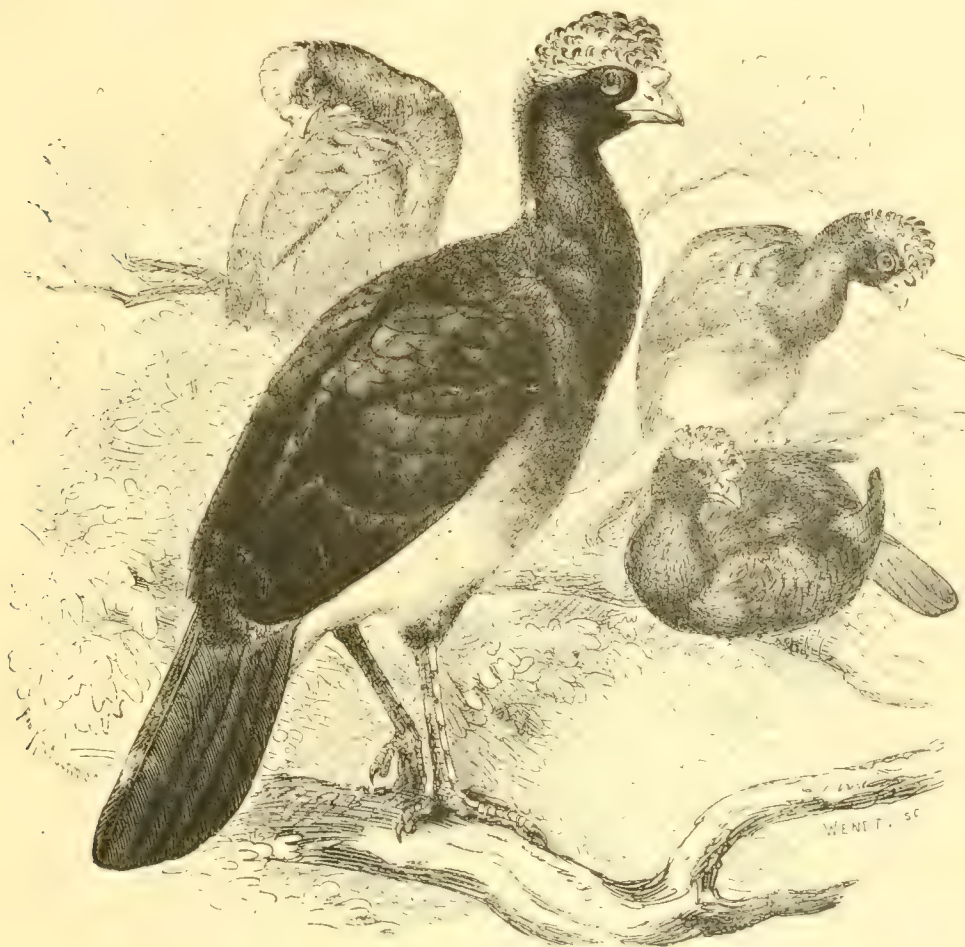
So plentiful were the Dodos at one time, and so easily were they killed, that the sailors were in the habit of slaying the birds merely for the sake of the stones in their stomachs, these being found very efficacious in sharpening their clasp-knives. The nest of the Dodo was a mere heap of fallen leaves gathered together on the ground, and the bird laid but one large egg. The weight of one full-grown Dodo was said to be between forty and fifty pounds. The color of the plumage was a grayish-brown in the adult males, not unlike that of the ostrich, while the plumage of the females was of a paler hue.



POULTRY.

CURASSOWS AND GUANS.

PLEAVING the pigeons, we now come to the large and important order of birds, termed scientifically the Gallinæ, and, more popularly, the Poultry. Sometimes they are termed Rasores, or scrapers, from their habit of scraping up the ground in search of food. To this order belong our domestic poultry, the grouse, partridges, and quails, the turkeys, pheasants, and many other useful and interesting birds. In almost every instance the Gallinæ are handsome birds, and interesting in their habits, but as their number is legion, and our space is rapidly diminishing, we must content ourselves with such species as afford the best types of the order to which they belong.



CRESTED CURASSOW.—*Crax alector*.

Our first example of these birds is the CRESTED CURASSOW, the representative of the genus *Crax*, in which are to be found a number of truly splendid birds. All the Curassows are natives of tropical America, and are found almost wholly in the forests.

The Crested Curassow inhabits the thickly-wooded districts of Guiana, Mexico, and Brazil, and is very plentifully found in those countries. It is a really handsome bird, nearly as large as the turkey, and more imposing in form and color. It is gregarious in its habits, and assembles together in large troops, mostly perched on the branches of trees. It is susceptible of domestication, and, to all appearances, may be acclimatized in England as well as the turkey or the pheasant.

There is special reason that the Curassows should be added to our list of domesticated poultry, for their flesh is peculiarly white and well flavored, surpassing even that of the turkey, and they are of a pleasant temper, and readily tamed by kindness. A dry soil is absolutely necessary for their well-being, as they suffer greatly from damp, which produces a disease of the foot and toes, often causing the toes to mortify and fall off. Trees are also needful as these birds are fond of perching at some height from the ground, and the situation must be sheltered from wind or rain.

In their native country the Curassows build among the trees, making a large and rather clumsy-looking nest of sticks, grass-stems, leaves, and grass-blades. There are generally six or seven eggs, not unlike those of the fowl, but larger and thicker shelled. The voice of the Crested Curassow is a short croak, but the various species differ slightly in this respect. The male Globose Curassow, for example, has a voice that sounds like a short, hoarse cough, and every time that it utters the cry it jerks up its tail and partially spreads the feathers. The voice of the female is unlike that of her mate, being a gentle whining sound. While perambulating the ground or traversing the branches, the Curassow continually raises and depresses its crest, giving itself a very animated aspect.

The color of the Crested Curassow is very dark violet, with a purplish-green gloss above and on the breast, and the abdomen is the purest snowy white, contrasting beautifully with the dark velvety plumage of the upper parts. The bright golden-yellow of the crest adds in no small degree to the beauty of the bird.

THE GUANS also belong to the same family as the Curassows. They are also inhabitants of the forests of tropical America; and are easily to be recognized by the naked and dilatable skin of the throat. They are not gregarious, like the curassow, but are mostly solitary in their habits, feeding chiefly on fruits and remaining on the branches. They are not so susceptible of domestication as the curassow, nor are they so large, being of a more delicate and slender shape. The flesh of these birds is very excellent.

OF the family *Cracidae*, the genus *Ortalida* has eighteen species, inhabiting South America, called in English, Curassows.

THE TEXAN GUAN (*Ortalis vetula*). This is the only species of the genus known to North America. Its local name is Chacalacca. Numerous species of the family are native in Mexico and Central America. All of them appear to be susceptible of domestication. The present species has been especially amenable to domestic treatment. They are quite gentle, and have even been crossed with common fowl. In the morning and evening, they utter a loud noise that resembles the above local name quickly spoken. These birds are very numerous near Brownsville and Matamoras, where they are exposed for sale in considerable numbers. The Mexicans esteem them for their fighting qualities.

Hybrids from the common fowl are used for gaming purposes. Its habits are pleasantly related by Mr. Cassin: "When I assure you that its voice in compass is equal to that of the Guinea fowl, and in harshness but little inferior, you may form some idea of the chorus with which the forests are made to ring at the hour of sunrise. At that hour in the month of April, I have observed a stately fellow descend from the tree on which it had roosted, and, mounting upon a log or stump, commence his clear, shrill cry. This was soon responded to in a lower tone by the female, the latter always taking up the strain as soon as the importunate call of her mate had ceased. Thus alternating, one pair after another would join in the matutinal chorus, and, before the rising sun had lighted up their close retreat, the

Animate Creation.

Testimonials to the "Tafeln" of Brehm's Thierleben.

The late CHARLES DARWIN writes:—"The illustrations are the best I ever saw in any work. I find it superfluous to enter here into particulars, as I already, in the 'Descent of Man,' have willingly and openly confessed how much I have profited by Mr. Brehm's book, and how highly I esteem it."

Sir JOHN LUBBOCK, Bart., D.C.L.:—"You have, I think, done good service in publishing them. They are certainly very admirable."

W. P. CARPENTER, M.D., LL.D., writes:—"I can quite endorse the favorable opinions already given by distinguished zoologists as to the high character of the illustrations generally."

WE have concluded to submit for public patronage a work with the above title, being a series of exquisite Engravings representing the ANIMAL WORLD, executed with great scientific accuracy, and accompanied by full Descriptive Text, written in popular terms, so as to delight and instruct the people. Anyone who has considered the subject must be at a loss to understand why an ILLUSTRATED NATURAL HISTORY, comprehensive and at the same time popular, has not before this been published in this country. Indeed any lover of animals who has visited the great museums and zoological gardens and has had access to books of engravings in the public libraries, could not fail to remark the wealth of material in existence devoted to this subject. Being confirmed in our conviction of the desirability of such a work, we laid under contribution the best existing authorities for the production of most perfect representations of all the more important living creatures, and among the artists whose delineations will delight the reader, we may mention Harrison Weir, Wolf, Coleman, Fr. Specht, and Mutzel. By far the majority of the engravings in these volumes are from drawings made from the *living* animals, many at the Zoological Society's Gardens in London, England.

We purpose that our patrons shall be aided and interested in their study by such an array of pictures as has never before embellished any Natural History. In numerous instances the engraving is printed in oil-colors, and this portion of the illustrations has been taken charge of by Messrs. L. Prang & Co., of Boston, who we believe rank foremost for high artistic results in this department of printing. These Oleographs were copied under the superintendence of Mr. Prang from the renowned "Tafeln" of "Brehm's Thierleben," so that they may be declared perfectly reliable.

We sought competent advice from various sources as to the most suitable text that should accompany this panorama of handsome Engravings. It was found impossible to embody all the present ideas of naturalists in a single work like this on account of the rapid advances and constant changes in their knowledge of, and habits of thought respecting, the Animal World. And it seemed to us correct that the true object of Zoology is not to arrange, to number, and to ticket animals in a formal inventory, but to inquire into their life-nature, and not simply to investigate the lifeless organism.

What do we know of "Man" from the dissecting-room? Is it not Man, the warrior, the statesman, the poet, etc., that we are interested in? With all veneration which attaches itself to those who are the accredited possessors of abstruse learning, their inordinate use of phraseology detracts too much, we fear, from the fascination that the study of the Animal World would otherwise yield, and as we are not content to have our work restricted to a favored few, we thought the task placed in our hands to be to keep the work free from a repellant vocabulary of conventional technicalities. Our endeavor has been to find an author whose work would be noted for its fund of anecdote and vitality rather than for merely anatomical and scientific presentation, and we arrived at the conclusion that we could not do better than avail ourselves of the Rev. J. G. Wood's comprehensive work—a work most popularly approved by speakers of the English language. It would be superfluous to say one word concerning the standard character of his book, from the pages of which old and young at the other side of the Atlantic have obtained so much instruction and rational amusement. Avoiding the lengthened dissertations and minute classifications of specialists, he presents to his readers in popular terms a complete treatise on the Animal Kingdom of all climes and countries. The one objection that could be urged against it was, that animal life in America might be treated more fully and American forms given more consideration. In order to obviate this drawback and to do full justice to the creatures of our own country, we secured the aid of Dr. J. B. HOLDER, of the American Museum of Natural History in New York, an undoubted American authority, who has adapted Wood's work to American wants and given prominence to American forms of Animal life.

The splendid work on Rodentia, by Allen, Coues, and others, will be fully consulted. The valuable work on North American Birds, by Baird, Brewer, and Ridgway, will be the guide in the treatment of birds. The late arrangement of the classification and nomenclature of North American Birds, by Mr. Ridgway, and the Committee on that subject of the Ornithologists' Union, will be utilized in full. The arrangement of Mammals will be after the latest classification by Professor Flower, of the Zoological Society of London. So that this will be the first popular Natural History worthy of the name that has made its appearance here, which gives due and full recognition to the animate world surrounding us.

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The extent of the work will be 68 parts of 28 pages, at the price of 25 cents each. The entire publication will contain 34 Oleographs and 68 Full Page Engravings on Wood, besides many hundreds of exquisite Illustrations interspersed through the text. The parts will be issued every two weeks, and are payable only as delivered. No subscriber's name will be received for less than the entire work, and anyone removing, or not regularly supplied, will please address the Publisher by mail.

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New York

woods would ring with the din of a hundred voices, as the happy couples met after the period of separation and repose." The eye of this bird exhibits the same expression of fire and animation seen in the game-cock.

The general appearance of this bird is that of a long-tailed pigeon of rather superior size. Its colors are plain greenish-olive.

SEVERAL very singular birds are found in Australia and New Guinea, called by the name of *Megapodinae*, or Great-footed birds, on account of the very large size of their feet; a provision of nature which is necessary for their very peculiar mode of laying their eggs and hatching their young.

The first of these birds is the AUSTRALIAN JUNGLE FOWL, which is found in several parts of Australia, but especially about Port Essington. In that country, great numbers of high and large mounds of earth exist, which were formerly thought to be the tombs of departed natives, and, indeed, have been more than once figured as such. The natives, however, disclaimed the sepulchral character, saying that they were origins of life rather than emblems of death; for that they were the artificial ovens in which the eggs of the Jungle Fowl were laid, and which, by the heat that is always disengaged from decaying vegetable substances, preserved sufficient warmth to hatch the eggs.

The size of these tumuli is sometimes quite marvellous; in one instance, where measurements were taken, it was fifteen feet in perpendicular height, and sixty feet in circumference at its base. The whole of this enormous mound was made by the industrious Jungle Fowl, by gathering up the earth, fallen leaves, and grasses with its feet, and throwing them backwards while it stands on the other leg. If the hand be inserted into the heap, the interior will always be found to be quite hot. In almost every case the mound is placed under the shelter of densely-leaved trees, so as to prevent the sun from shining upon any part of it. This precaution is probably taken in order to prevent the rays of the sun from evaporating the moisture. The aspect of the heap depends much on the surrounding objects; and in one instance it was placed close to the sea, just above high-water mark, and was composed of sand, shells, and black mould. It was situated in the midst of a large yellow-blossomed hibiscus, by which it was enveloped.

The bird seems to deposit its eggs by digging holes from the top of the mound, laying the egg at the bottom, and then making its way out again, throwing back the earth that it had scooped away. The direction, however, of the holes is by no means uniform, some running towards the centre and others radiating towards the sides. They do not seem to be dug quite perpendicularly; so that, although the holes in which the eggs are found may be some six or seven feet in depth, the eggs themselves may be only two or three feet from the surface.

A further detailed account of these tumuli and the manner in which the bird lays its eggs is given by Mr. Gilbert, whose researches are quoted in Gould's *Birds of Australia*:—

"The birds are said to lay but a single egg in each hole, and after the egg is deposited, the earth is immediately thrown down lightly until the hole is filled up; the upper part of the mound is then smoothed and rounded over. It is easily known where a Jungle Fowl has been recently excavating, from the distinct impression of its feet on the top and sides of the mound; and the earth being so lightly thrown over, that with a slender stick the direction of the hole is readily detected, the ease or difficulty of thrusting the stick down indicating the length of time that may have elapsed since the bird's operations.

"Thus far it is easy enough, but to reach the eggs requires no little exertion and perseverance. The natives dig them up with their hands alone, and only make sufficient room to admit their bodies and to throw out the earth between their legs. By grubbing with their fingers alone, they are enabled to feel the direction of the hole with greater certainty, which will sometimes, at a depth of several feet, turn off abruptly at right angles, its direct course being obstructed by a clump of wood or some other impediment.

"Their patience is, however, often put to severe trials. In the present instance, the native dug down six times to a depth of at least six or seven feet, without finding an egg,

and at the last attempt came up in such a state of exhaustion that he refused to try again. But my interest was now too much excited to relinquish the opportunity of verifying the native's statement, and by the offer of an additional reward I induced him to try again. This seventh trial proved successful, and my gratification was complete when the native, with equal pride and satisfaction, held up an egg, and after two or three more attempts, produced a second; thus proving how cautious we should be in disregarding the narratives of these poor children of nature, because they happen to sound extraordinary, or different from anything with which we were previously acquainted."

On one occasion, Mr. Gilbert caught a young Jungle Fowl in a hole, about two feet in depth, and the little creature, which appeared to be only a few days old, was lying upon some dry leaves. It was a wild and intractable bird despite its tender age, and though it was treated well and ate largely of the food with which it was supplied, it continued to be restless and uneasy, and in two or three days contrived to escape. Even at that age, it possessed the earth-heaping propensities of its kind, and used to be continually flinging about the sand which filled the box in which it was placed. Although so small a bird, not larger than young quail, it could grasp a quantity of sand, and throw it from one end of the box to the other, without apparently exerting itself, and was so constantly engaged in that occupation that it deprived its owner of sleep during the few nights that it remained in his possession.

The same patient and acute observer gives the following account of the general habits of this species:—

"The Jungle Fowl is almost exclusively confined to the dense thickets immediately adjacent to the sea-beach; it appears never to go far inland except along the banks of creeks. It is always met with in pairs or quite solitary, and feeds on the ground; its food consisting of roots, which its powerful claws enable it to scratch up with the utmost facility, and also of seeds, berries, and insects, particularly the larger kind of coleoptera.

"It is at all times a very difficult bird to procure; for although the rustling noise produced by its stiff pinions when flying away be frequently heard, the bird itself is seldom to be seen. Its flight is heavy and unsustained in the extreme. When first disturbed, it invariably flies to a tree, and on alighting, stretches out its head and neck in a straight line with its body, remaining in this position as stationary and motionless as the branch upon which it is perched; if, however, it becomes fairly alarmed, it takes a horizontal but laborious flight for about a hundred yards, with its legs hanging down as if broken. I did not myself detect any note or cry, but from the natives' description and imitation of it, it much resembles the clucking of the domestic fowl, ending with a scream like that of the peacock.

"I observed that the birds continued to lay from the latter part of August to March, when I left that part of the country; and, according to the testimony of the natives, there is only an interval of about four or five months, the driest and the hottest part of the year, between their season of incubation."

The coloring of this bird is simple, but the tints are soft and pleasing. The head is rich ruddy brown, the back of the neck blackish-gray, and the back and wings brownish-cinnamon, deepening into dark chestnut on the tail-coverts. The whole of the under surface is blackish-gray. The legs are orange, and the bill rusty-brown.

PHEASANT, TURKEY, AND PEACOCK.

THE LEIPOA, or NATIVE PHEASANT of the colonists, so called on account of the pheasant-like aspect of its head and neck, and the general outline of the body, is also an Australian bird, inhabiting the northwestern parts of that country, and the sandy plains of the interior.

Like the preceding species, it lays its eggs in a mound of earth and leaves, but the mound is not nearly so large, seldom exceeding three feet in height and eight or nine in diameter, so

that it bears some resemblance to a large ant-heap, a similitude which is greatly strengthened by the large number of ants which are always found in the mounds, and by the indurated substance of its lower portion, which is sometimes so hard that the eggs cannot be got at without the aid of a chisel. These nests are generally well hidden away from observation, being placed in the driest and sandiest spots, in which a thick dense bush grows so plentifully that a human being can hardly force his way through them, though the bird is able to traverse their intricacies with great celerity.

The mound is composed of sand and soil, containing a mass of leaves and grass, in the midst of which the eggs are laid, each egg being carefully placed separately from the others. There are many eggs, often more than a dozen, and one of these mounds is quite a little property to the person who is fortunate enough to find it, as the bird will suffer her nest to be robbed repeatedly, and will lay over and over again, thus affording a bountiful supply of eggs to the discoverer. The color of the eggs is white with a very slight tinge of red.

The Leipoa is an active bird, chiefly depending on its legs, like the pheasant, and never seeking to escape by flight unless absolutely driven to such a course. When startled, its usual plan is to take to its legs, and run off at full speed, threading the bushes with great rapidity and being very likely to escape if the bush be thick. But if it be surprised when the ground is tolerably open, it may be run down and captured without much difficulty, as it possesses a stupid habit which was formerly attributed to the ostrich. Looking naturally upon the bushes as its home, it makes at once for the nearest bush, dashes into it, and there remains until the pursuer comes up and drags it from its fancied refuge.

The head of the Leipoa is decorated with a well-defined crest, which, like the remainder of the head, is blackish-brown. The neck and shoulders are dark ashen-gray, and the front of the neck and the upper part of the breast are covered with long black pointed feathers, each having a white stripe along its centre. The primary feathers of the wings are dark brown, having some sharply-toothed lines near the tip, and the feathers of the back and remainder of the wings are marked near their extremities with three bands of grayish-white, brown, and black, forming a series of "eyes" upon the feathers. The under surface is buff, the flanks being barred with black. The tail is deep blackish-brown with a broad buff tip, the bill is black, and the legs blackish-brown. In size the Leipoa is about equal to a very small turkey.

ANOTHER very remarkable bird possesses many of the same habits as the two preceding species. This is the BRUSH TURKEY, sometimes called the WATTLED TALLEGALLA or the NEW HOLLAND VULTURE, the latter extraordinary title having been given to it on account of its head and neck, which in some parts are devoid of feathers, in others are covered only with short hair, and in others are decorated with naked fleshy wattles. The native name is Weelah.

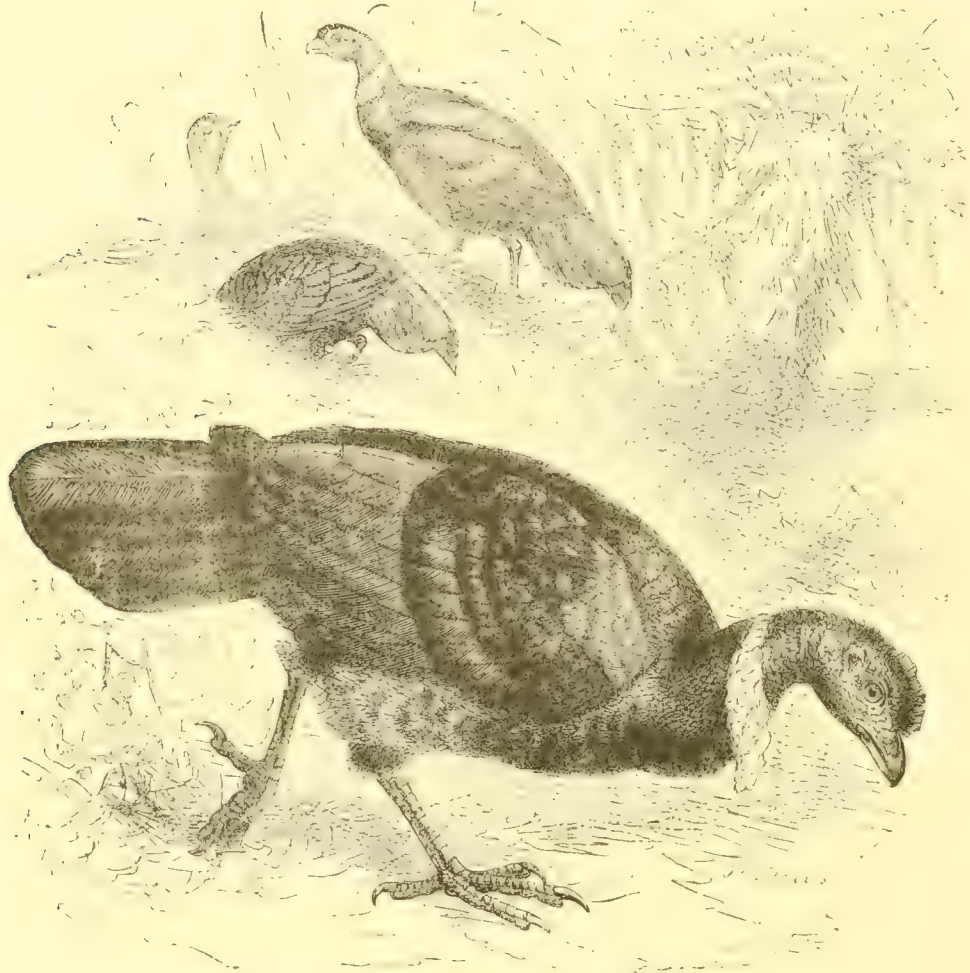
This bird is far from uncommon in many parts of New South Wales, and inhabits the densest bushes of that country. Like the Leipoa, when pursued it endeavors to effect its escape by running through the tangled brush, a feat which it can perform very adroitly, but it is not so silly as to allow itself to be taken by hand as in the case of the preceding species. When very closely pursued, and unable to escape by speed, it jumps into the lowest branch of some tree, leaps from bough to bough until it has reached the top, and either perches there or flies off to another part of the brush.

The Brush Turkey is a gregarious bird, living in small companies, and, like the true turkey, is very wary and suspicious. The great enemy of this bird is the dingo or native dog, which persecutes the flocks sadly, and often hunts them down. From this foe they are safe by flying into a tree; but this elevated position only makes them the more subject to the colonist's gun, and as the birds seem stunned or bewildered by the report, they will suffer several rounds to be fired before they will fly away. Moreover, they have a habit of resorting to the trees at midday, and sheltering themselves from the sun under the spreading foliage, so that any one who has a knowledge of the customs of this bird may be sure of good sport and a heavy bag.

The food of the Brush Turkey mostly consists of seeds and vegetable substances, though

insects of various kinds have been found in its stomach, which is exceedingly muscular. Like other gallinaceous birds, it is fond of dusting itself, and as it loves to resort to the same spot, it scrapes considerable depressions in the earth, which lead the practised hunter to its residence. The voice of the Brush Turkey is a rather loud clucking sound. Its flesh is particularly excellent, and there are hopes that this fine bird may also be in time added to the list of domesticated poultry.

The egg mound—for it cannot rightly be called a nest—of this bird is extremely large,



BRUSH TURKEY.—*Talegallus lathamii*.

containing, according to Mr. Gould, several cartloads of materials, and being formed into a conical or somewhat pyramidal shape. It is not made by a single pair of birds, but is the result of united labor, and is used from year to year, fresh materials being supplied each season in order to make up the deficiency caused by the decomposition of the vegetable matter below. Mr. Gould, to whom we are indebted for the greatest part of our knowledge respecting these curious birds, gives the following account of the nidification of the Brush Turkey:—

“The mode in which the materials composing these mounds are accumulated is very singular, the bird never using its bill, but always grasping a quantity in its foot, throwing it backwards to one common centre, and thus clearing the surface of the ground for a considerable distance so completely that scarcely a leaf or a blade of grass is left. The heap being accumulated, and time allowed for a sufficient heat to be engendered, the eggs are deposited, not side by side as is usually the case, but *planted* at the distance of nine or twelve inches from each other, and buried at nearly an arm’s depth, perfectly upright, with the large end upwards; they are covered up as they are laid, and allowed to remain until hatched. I have been credibly

informed, both by natives and settlers living near their haunts, that it is not an unusual event to obtain nearly a bushel of eggs at one time from a single heap; and as they are delicious eating, they are eagerly sought after.

“Some of the natives state that the females are constantly in the neighborhood of the heap about the time the young are likely to be hatched, and frequently uncover and cover them up again, apparently for the purpose of assisting those that may have appeared; while others have informed me that the eggs are merely deposited and the young allowed to force their way unassisted. In all probability, as Nature has adopted this mode of reproduction, she has also furnished the tender birds with the power of sustaining themselves from the earliest period; and the great size of the egg would equally lead to this conclusion, since in so large a space it is reasonable to suppose that the bird would be much more developed than is usually found in eggs of smaller dimensions. In further confirmation of this point, I may add that in searching for eggs in one of the mounds, I discovered the remains of a young bird, apparently just excluded from the shell, and which was clothed with feathers, not with down, as is usually the case.”

Mr. P. L. Selater has given the following most valuable account of the habits of this bird in a state of captivity:—

“The singular phenomenon of the mound-raising faculty of the *Tallegalla*, which had been well ascertained in Australia by Mr. Gould, has been annually displayed in the bird's state of captivity.

“On being removed into an inclosure, with an abundance of vegetable material within reach, the male begins to throw it up into a heap behind him, by a scratching kind of motion of his powerful feet, which project each footful as he grasps it for a considerable distance in the rear. As he always begins to work at the outer margin of the inclosure, the material is thrown inwards in concentric circles, until sufficiently near the spot selected for the mound to be jerked upon it. As soon as the mound is risen to a height of about four feet, both birds work in reducing it to an even surface, and then begin to excavate a depression in the centre. In this, in due time, the eggs are deposited as they are laid, and arranged in a circle, about fifteen inches below the summit of the mound, at regular intervals, with the smaller end of the egg pointing downwards. The male bird watches the temperature of the mound very carefully; the eggs are generally covered, a cylindrical opening being always maintained in the centre of the circle for the purpose of giving air to them, and probably to prevent the danger of a sudden increase of heat from the action of the sun or accelerated fermentation in the mound itself. In hot days the eggs are nearly uncovered two or three times between morning and evening.

“On the young bird chipping out of the egg, it remains in the mound for at least twelve hours without making any effort to emerge from it, being at that time almost as deeply covered up by the male as the rest of the eggs.

“On the second day it comes out, with each of its wing-feathers well developed in a sheath which soon bursts, but apparently without inclination to use them, its powerful feet giving it ample means of locomotion at once. Early in the afternoon, the young bird retires to the mound again, and is partially covered up for the night by the assiduous father, but at a diminished depth as compared with the circle of eggs from which it emerged in the morning. On the third day, the nestling is capable of strong flight, and on one occasion one of them, being accidentally alarmed, actually forced itself, while on the wing, through the strong netting which covered the inclosure. The accounts of the habits of the *Tallegalla*, given by Mr. Gould in his *Birds of Australia*, in 1842, strange as it appeared at the time, are thus perfectly verified in every respect.”

The general color of the adult male *Tallegalla* is blackish-brown above, and the same on the under surface with a silver gray gloss produced by the gray tips of the back feathers. The cheeks are naked, the head and neck covered with short hair-like feathers of a dark blackish hue, and the front of the neck is furnished with a large naked fleshy wattle, something like that of a turkey, and being of a bright yellow warming into orange-red at its junction with the neck. The bill is black; the eyes brown chestnut, and the legs and feet dark brown. The male bird is about the size of an ordinary turkey, and the female is about one-fourth less.

Her plumage is like that of the male, from which she may be readily distinguished by the smaller size of the wattle.

THE large family of the Peacocks, or Pavoninae, now claims our attention. For convenience of description, these birds have been separated into several sub-families, which are defined with tolerable certainty. Of the Pavoninae, we shall find two examples in the following pages.

The PEACOCK may safely be termed one of the most magnificent of the feathered tribe, and may even lay a well-founded claim to the chief rank among birds in splendor of plumage and effulgence of coloring. We are so familiar with the Peacock that we think little of its real splendor; but if one of these birds had been brought to Europe for the first time, it would create a greater sensation than even the hippopotamus or the gorilla.

The Peacock is an Asiatic bird, the ordinary species being found chiefly in India, and the Javanese Peacock in the country from which it derives its name. In some parts of India the Peacock is extremely common, flocking together in bands of thirty or forty in number, covering the trees with their splendid plumage, and filling the air with their horridly dissonant voices. Captain Williamson, in his "Oriental Field Sports," mentions that he has seen at least twelve or fifteen hundred Peacocks within sight of the spot where he stood.

These birds are great objects of sport, and are mostly killed by the gun, though a good rider may sometimes run them down by fair chase. The Peacock takes some little preparation to get on the wing, and if hard pressed is not able to rise into the air. The horseman then strikes at the bird with his long lashed whip, so as to get the lash round its neck, and soon masters the beautiful quarry. "When upon the wing," says Captain Williamson, "they fly very heavy and strong, generally within an easy shot. It may reasonably be supposed that they fall very heavy, but if only winged they soon recover, and if not closely pursued will, nine times in ten, disappear. When the *peepul* berries, or figs, are in season, their flesh is rather bitter; but when they have fed a while among the corn-fields, they become remarkably sweet and juicy. This is to be understood of the young birds, which make excellent roasters. The older birds are sometimes put to the spit, but are by no means so good as when the breasts are made into cutlets, and the residue boiled down into a rich soup. I have always thought such Peacocks as frequented the mustard-fields after the pods were formed to be very superior.

"They abound chiefly in close wooded forests, particularly where there is an extent of long grass for them to range in. They are very thirsty birds, and will only remain where they can have access to water. Rhur plantations are their favorite shelter, being close above so as to keep off the solar rays, and open at the bottom sufficiently to admit a free passage for the air. If there be trees near such spots, the Peacocks may be seen mounting into them every evening towards dark to roost; and in which they generally continue till the sun rises, when they descend to feed, and pass the midday in the heavy coverts.

"They are very jealous of all quadrupeds, especially of dogs; no doubt from finding the jackal, and probably the tiger, to be such inveterate enemies. When Peacocks are discovered in a tree, situated on a plain, if a dog be loose and hunt near it, the bird will rarely move from it, though it will probably show extreme uneasiness.

"But the most certain mode of killing one or two birds is by stealing under the trees at night; if there be a clear moon, so much the better. In this way, by looking up among the foliage, the Peacocks may be readily distinguished. When they are very numerous, and only one bird is wanted, as certain a mode as any is to lie in wait behind a bush near their feeding haunts; but without the most perfect silence this will not succeed.

"Though Pea-fowls invariably roost in trees, yet they make their nests on the ground, and ordinarily on a bank raised above the common level, where in some sufficient bush they collect leaves, small sticks, etc., and sit very close. I have on several occasions seen them in their nests, but as I refrained from disturbing them, they did not offer to move, though they could not fail to know that they were discovered. They usually sit on about a dozen or fifteen eggs. They are generally hatched about the beginning of November; and from January to

the end of March, when the corn is standing, are remarkably juicy and tender. When the dry season comes on, they feed on the seeds of weeds and insects, and their flesh becomes dry and muscular."

Peacock-shooting, although an exciting sport, is a dangerous one, the tiger feeling himself suited by the rhur and other vegetation in which the Peacock delights, so that an inexperienced sportsman may suddenly find himself face to face with a tiger, and run a strong chance of being himself the object of pursuit. Old hunters, however, who know the habits of the Peacock, find that bird extremely useful in denoting the presence of tigers. When the Peacock finds itself in close proximity to a tiger, or even a wild cat, it raises the sound of alarm, which is a loud hoarse cry, answered by those within hearing. The bird then utters a series of sharp quick grating notes, and gets higher into the trees so as to be out of reach of the tiger's claws.

The Peacock is everywhere very common, and forms a magnificent adjunct to the lawn, the park, the garden, and the farm-yard. The evident admiration and self-consciousness with which a Peacock regards himself are truly amusing, the bird always looking out for spectators before it spreads its train, and turning itself round and round so as to display its beauties to the best advantage. At night it always roosts in some elevated spot; and invariably sits with its head facing the wind. Several Peacocks, which I used to see daily, always roosted upon the thatch of a corn-rick, their long trains lying along the thatch so closely that towards dark they could hardly be seen. In character, the Peacock is as variable as other creatures, some individuals being mild and good-tempered, while others are morose and jealous to the extreme.

One of these birds, living in the north of Ireland, was a curious mixture of cruelty and fun. He had four wives, but he killed them all successively by pecking them to death, for what cause no one could find out. Even its own children shared the same fate, until its owner put the Pea-fowl eggs under a sitting hen, and forced her to hatch the eggs and tend the young far out of his sight.

His great amusement was to frighten the chickens. There were two iron troughs in which the food for the chickens was placed daily, and to which they always resorted as soon as their food was poured into their troughs. No sooner had they all assembled than the Peacock would erect his train, rattle his quills together with that peculiar rustling sound that is so characteristic of these birds, and march slowly towards the chickens. The poor little birds would slowly back away from the trough as the Peacock advanced, not liking to lose sight of their food, and not daring to remain in defiance of their persecutor. By degrees he got them all into a corner, crouching together and trembling, when he would overshadow them with his train, place the ends of the feathers against the wall so as to cover them completely, rattle the quills heartily so as to frighten them extremely, and then would walk off, looking quite exultant at the trick he had just played. He did not care for eating their food, but left the trough untouched.

The train of the male Peacock, although popularly called its tail, is in reality composed of the upper tail-coverts, which are enormously lengthened, and finished at their extremities with broad rounded webs, or with spear-shaped ends. The shafts of these feathers are almost bare of web for some fourteen or fifteen inches of their length, and then throw out a number of long loose vanes of a light coppery-green. These are very brittle and apt to snap off at different lengths. In the central feathers the extremity is modified into a wide flattened battledore-shaped form, each barbule being colored with refulgent emerald-green, deep violet-purple, greenish bronze, gold and blue, in such a manner as to form a distinct "eye," the centre being violet of two shades, surrounded with emerald, and the other tints being arranged concentrically around it. In the feathers that edge the train there is no "eye," the feathers coming to a point at the extremity, and having rather wide but loose emerald-green barbules on its outer web, and a few scattered coppery barbules in the place of the inner web. The tail-feathers are only seven or eight inches in length, are of a grayish-brown color, and can be seen when the train is erected, that being their appointed task.

On the head is a tuft or aigrette of twenty-four upright feathers, blackish upon their

almost naked shafts, and rich golden-green, shot with blue, on their expanded tips. The top of the head, the throat and neck, are the most refulgent blue, changing in different lights to gold and green. On the back the feathers are golden-green, edged with velvety black, giving a peculiar richness of effect. The wings are darker than the rest of the plumage, the quill-feathers being marked with black, and having some red about them. The abdomen is blackish, with a green gloss, and the feathers of the thighs are fawn. The female is much smaller than her mate, and not nearly so beautiful, the train being almost wanting, and the color ashy-brown with the exception of the throat and neck, which are green. A white or albino variety of this bird is not at all uncommon, and in this case the characteristic "eyes" are faintly indicated in neutral tint.

THE generic term Polyplectron signifies "many-spurred," and is given to a genus of gallinaceous birds because they have two or sometimes three spurs on each leg. There are several species, all very handsome birds, and one of the most conspicuous is the CRESTED PEACOCK PHEASANT. As is the case with all the species, the tail is greatly enlarged, so as to be spread into a flat, wide, fan-like form, with two ranges of feathers placed one above each other, and decorated with a double row of large lightly-colored spots. It probably inhabits Soudan and the Moluccas, but there is little known of its habits.

The beautiful crest which adorns the head is very deep shining violet-blue, and the head, neck, and breast, are of the same color. Over the eye runs a white streak, and a white patch is placed just below and behind the eye, contrasting very boldly with the deep violet of the surrounding plumage. The back is brown, covered with irregular wavy lines of a paler hue, and the wing-coverts and secondaries are bright azure tipped with velvety-black. The tail is brown, covered with innumerable little spots of yellowish-white, and each feather is marked near the tip with a large oval spot of shining metallic green, surrounded first with a waved line of black and then with a broader line of pale brown. Close to the tip each feather is bordered with black, and the extremity is pale fawn. The abdomen is dull black. In total length, this bird measures about twenty inches.

THE Pheasants comes next in order, and the grandest and most imposing of this group, although there are many others that surpass its brilliant coloring, is the ARGUS PHEASANT, so called in remembrance of the ill-fated Argus of mythology, whose hundred eyes never slept simultaneously until charmed by the magic lyre of Mercury.

This magnificent bird is remarkable for the very great length of its tail-feathers and the extraordinary development of the secondary feathers of the wings. While walking on the ground, or sitting on a bough, the singular length of the feathers is not very striking, but when the bird spreads its wings, showing the full expanse of the secondaries, they come out in all their beauty. As might be supposed from the general arrangement of the plumage, the bird is by no means a good flier, and when it takes to the air, only flies for a short distance. In running its wings are said to be efficient aids.

Although the Argus is hardly larger than an ordinary fowl, the plumage is so greatly developed that its total length measures more than five feet. The head and back of the neck are covered with short brown feathers, and the neck and upper part of the breast are warm chestnut-brown covered with spots of yellow and black, and similar tints are formed on the back. The tail is deep chestnut covered with white spots, each spot being surrounded with a black ring. When the bird chooses, it can raise the tail, so that it stands boldly in the air between the wings and is partially spread. The secondaries of the wings are most wonderful examples of plumage, and would require many pages to describe them fully. Suffice it to say that the gradations of jetty-black, deep rich brown, orange, fawn, olive and white are so justly and boldly arranged as to form admirable studies for the artist, and totally to baffle description.

In one feather now before me there are seventeen large "eyes" on the outer web, each being surrounded with a ring of jetty-black, then with a dash of chocolate within the ring, then olive with the least possible tinge of purple, and lastly with a spot of pure white near the tip, fading imperceptibly into the olive on one side and the chocolate on the other.

Between these "eyes" some leopard-like mottlings diversify the rich fawn of the ground color, and outside them four wavy bands of dark brown run along the feather towards the edge, breaking up into spots about an inch before they reach the edge. The inner web is pale fawn covered with black spots, surrounded with buff, and the tip of the whole feather is deep brown, spotted profusely with white. The shaft is black at its base, and yellow towards its termination.

In another feather both webs are marked just like a leopard, with dark spots on a fawn ground, only the spots are arranged in diagonal rows. But along the shaft runs a band, about three-quarters of an inch wide, of rich chocolate, profusely speckled with the tiniest white spots, also arranged in rows. This band does not quite extend to the end of the feather, which at its tip is pale fawn very sparingly studded with deep brown rosettes, surrounded with chestnut. These are but two feathers, and I might take twenty as wonderful. In the female the secondary feathers, instead of measuring nearly a yard in length, are little more than a foot, and the eyes are much more obscure. The Argus Pheasant inhabits Sumatra and neighboring localities.

THE well-known PHEASANT affords a triumphant instance of the success with which a bird of a strange country may be acclimatized to another with some little assistance from its owner.

Originally the Pheasant was an inhabitant of Asia Minor, and has been by degrees introduced into many European countries, where its beauty of form and plumage and the delicacy of its flesh made it a welcome visitor. In northern countries, it is probably dependent to a great extent on "preserves" for its existence, as, even putting aside the marauding attacks of poachers, whether biped or quadruped, the bird requires much shelter and plenty of food. Even with the precautions that are taken by the owners of preserves, the breed is to some degree artificially kept up by the hatching of Pheasant's eggs under domestic hens, and feeding them in the coop like ordinary chickens, until they are old and strong enough to get their own living.

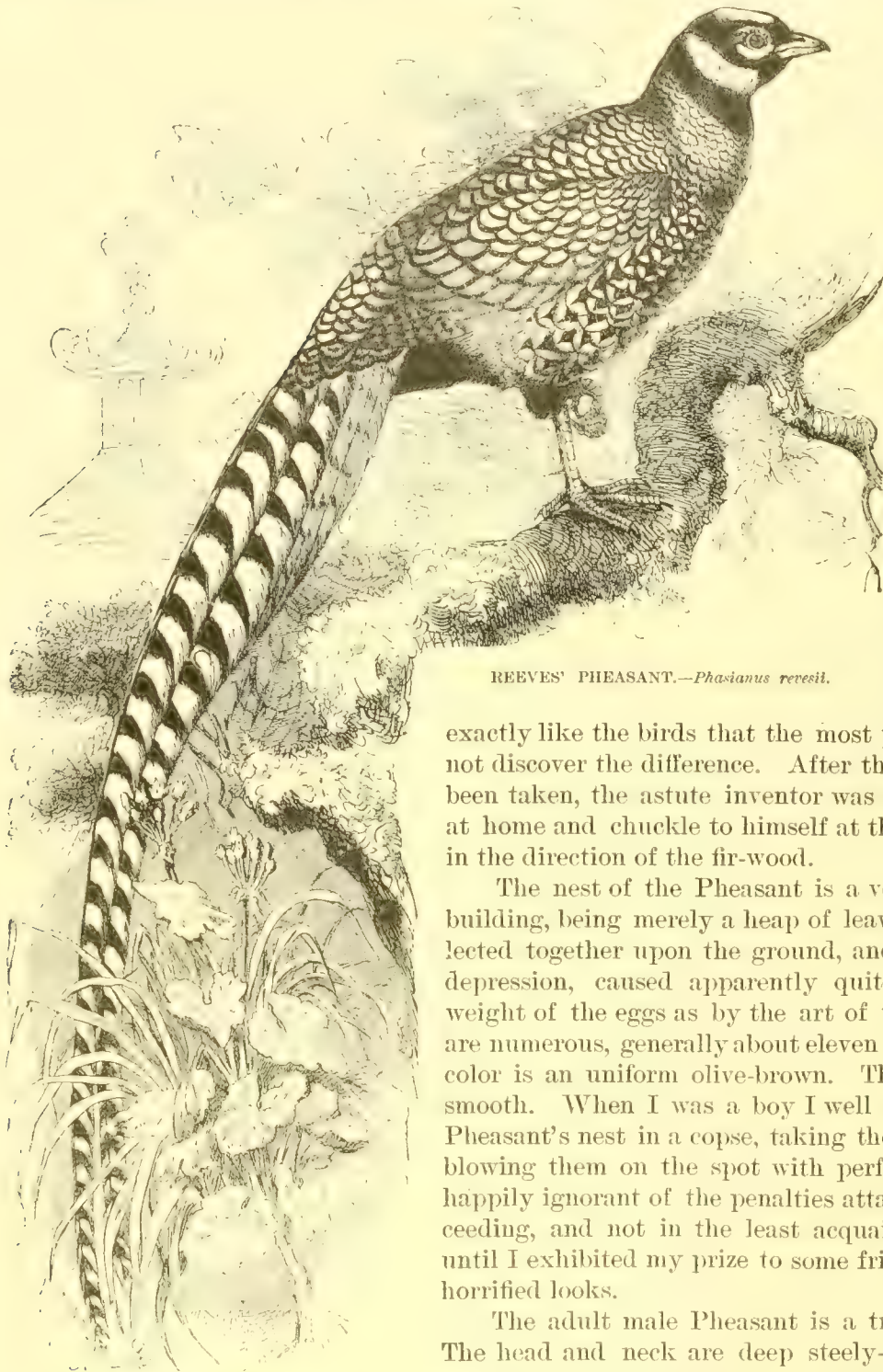
The food of this bird is extremely varied. When young it is generally fed on ants' eggs, maggots, grits, and similar food, but when it is fully grown it is possessed of an accommodating appetite, and will eat many kinds of seeds, roots, and leaves. The tubers of the common buttercup form a considerable item in its diet, and the bird will also eat beans, peas, acorns, berries of various kinds, and has even been known to eat the ivy leaf as well as the berry.

The Pheasant is a ground-loving bird, running with great speed, and always preferring to trust to its legs rather than its wings. It is a crafty creature, and when alarmed, instead of rising on the wing, it slips quietly out of sight behind a bush or through a hedge, and then runs away with astonishing rapidity, always remaining under cover until it reaches some spot where it deems itself to be safe. The male Pheasant is not in the least given to the domestic affections, passing a kind of independent existence during part of the year, and associating with others of its own sex during the rest of the season. It is a very combative bird, and can maintain a stout fight even with a barn-door cock. When the two fight, an event of no very unfrequent occurrence, the Pheasant often gets the better of the combat by his irregular mode of proceeding. After making two or three strokes, up goes the Pheasant into a tree to breathe awhile, leaving the cock looking about for his antagonist. Presently, while his opponent is still bewildered, down comes the Pheasant again, makes another stroke and retires to his branch. The cock gets so puzzled at this mode of fighting that he often yields the point.

It is rather curious that the Pheasant should display so great a tendency to mate with birds of other species. Hybrids between the Pheasant and common hen are by no means uncommon, and the peculiar form and color of the plumage, together with the wild and suspicious mien, are handed down through several generations. The grouse is also apt to mate with the Pheasant, and even the turkey and the guinea fowl are mentioned among the members of these curious alliances.

As these pages are not intended for sporting purposes, the art and mystery of Pheasant shooting will be left unnoticed. The ingenious mode employed by Mr. Waterton for the

deception of poachers, is, however, too amusing to be omitted. Those nocturnal marauders were accustomed to haunt the fir plantations at night, and by looking upwards could easily see the Pheasants as they sat asleep across the branches, and bring them down with the gun,



REEVES' PHEASANT.—*Phasianus reevesi*.

or even a noose on a long rod. So, thinking that prevention was better than prosecution, he first planted a number of thick holly clumps, dark as night in the interior, and quite impervious to human beings unless cased in plate armor. The Pheasants soon resorted to these fortresses, but their places were filled with a few hundred rough wooden Pheasants, which were nailed upon the fir branches, and at night looked so

exactly like the birds that the most practised eye could not discover the difference. After these precautions had been taken, the astute inventor was able to rest quietly at home and chuckle to himself at the nocturnal reports in the direction of the fir-wood.

The nest of the Pheasant is a very rude attempt at building, being merely a heap of leaves and grasses collected together upon the ground, and with a very slight depression, caused apparently quite as much by the weight of the eggs as by the art of the bird. The eggs are numerous, generally about eleven or twelve, and their color is an uniform olive-brown. Their surface is very smooth. When I was a boy I well remember finding a Pheasant's nest in a copse, taking the whole clutch and blowing them on the spot with perfect openness, being happily ignorant of the penalties attached to such a proceeding, and not in the least acquainted with the risk until I exhibited my prize to some friends, and saw their horrified looks.

The adult male Pheasant is a truly beautiful bird. The head and neck are deep steely-blue, "shot" with greenish-purple and brown; and the sparkling hazel eye

is surrounded with a patch of bare scarlet skin, speckled profusely with blue-black. Over the ears there is a patch of brown. The upper part of the back is beautifully adorned with light golden-red feathers, each being tipped with deep black; and the remainder of the back is of the same golden-red, but marked with brown and a lighter tint of yellow without any admixture of red. The quill-feathers of the wing are brown of several shades, and the long quills of the tail

are oaken-brown changing to purple on the edge of the outer web, and barred with jetty-black on the outer web and brown on the inner. The breast and front of the abdomen are golden-red with purple reflections, and diversified by the black edge of each feather; the rest of the abdomen and under tail-coverts are blackish brown. In total length the full-grown male Pheasant is about three feet. The female is much more sober in her colors and less in size than her mate, her body being of a pale yellow-brown, and her length only some two feet.

THE gorgeous bird which is now known by the name of REEVES' PHEASANT, but which has undergone so many changes of title, is a native of Surinagur and Northern China.

It is a truly remarkable bird, for although its body does not surpass the ordinary Pheasant in size, the total length of a full-grown male will often exceed eight feet, owing to the very great development of the two central tail-feathers, which alone will measure six and seven feet in length, and are very wide at the base. This species has been brought alive to foreign countries and placed in the Zoological Gardens and aviaries, where it thrives tolerably well; and was sufficiently hardy to warrant a hope that it might be acclimatized to moderate climates. Its habits in a wild state are little known, but those specimens which have been kept in captivity behaved much like the ordinary Pheasant. Although so splendid and highly colored a bird, it inhabits very cold regions, the mountains of Surinagur being covered with snow. In that country it is known by the appropriate name of Doomdurour or Long-tail.

No amount of artificial coloring could give the full effect of the gorgeous and ever-changing beauty which adorns the plumage of this magnificent bird; while the simple black and white of an engraving gives but a very faint notion of its real magnificence. The absence of colors must, therefore, be faintly supplied with a brief description in words.

The head is white, except a patch of light scarlet naked skin around the eyes, edged by a band of black which runs over the forehead, under the chin, and is rather broader over the ear-coverts. The neck is also broadly collared with white. The back of the neck, and the back itself are covered with shining scale-like feathers, each being a light golden-yellow and edged at the extremity by a band of deep velvety-black, thus producing an extremely rich appearance. The feathers of the breast and abdomen are snowy-white, banded and tipped with the same velvety-black as those of the upper parts with the exception of the middle of the breast and abdomen, which are deep black, and the under tail-coverts, which are also black covered with golden-yellow spots. The two central feathers of the tail are delicate gray, covered with numerous transverse and rather curved bands of rich dark brown, edged with a lighter tint of the same color. In one of these feathers, only four feet in length, Mr. Temminck counted forty-seven bands. The remaining feathers of the tail are grayish-white, also profusely barred with deep brown, and passing into chestnut at their edges. They can be folded over each other, and they appear very narrow.

Two very lovely birds are shown in the next illustrations, one glowing like the sun in the full radiance of gold and crimson, and the other shining like the moon with a soft silvery lustre, not so splendid, but even more pleasing.

THE GOLDEN PHEASANT is a native of China, where it is a great favorite, not only for its splendid plumage and elegant form, but for the excellence of its flesh, which is said to surpass in delicacy even that of the common Pheasant.

For the purposes of the table, however, it is hardly likely to come into general use, as there are great difficulties in the way of breeding it in sufficient number, and one feels a natural sensation of repugnance to the killing of so beautiful a bird merely for the sake of eating it. As it is a tolerably hardy bird, bearing confinement well, and breeding freely, it has been turned out into preserves with the common Pheasant, but as yet without sufficient success to warrant the continuation of the experiments.

This bird, together with another which will be briefly mentioned, is remarkable for the large ruff of broad squared feathers which folds round its neck, as well as for the finely developed crest. This crest is of rich golden-yellow with a tinge of carmine. The feathers of the ruff are squared, and disposed in a scale-like fashion; their color is rich orange edged with

velvety-black. The whole ruff can be raised or depressed at will. Fly-fishers hold the crest and ruff of this bird in great value, as many of their best artificial baits owe their chief beauty to the Golden Pheasant. Just below the ruff comes a patch of scale-like rounded feathers of dark glossy-green, over which the ends of the ruff feathers play as the bird moves its head, and below them the back is wholly of a bright golden-yellow, enriched on the upper tail-coverts by a crimson edging. The primary and the secondary feathers of the wings are a rich brown barred with chestnut, and their bases are deep blue. The breast and abdomen are brightest scarlet, and the tail is rich chestnut mottled with black. The eye is bright, glancing, and of a whitish yellow.

These magnificent colors only belong to the male bird, the female being reddish-brown spotted and marked with a darker hue, and the tail is short.

THE second ruffed Pheasant is that which is known by the name of AMHERST'S PHEASANT (*Thaumalea amherstiae*), also a native of China. This magnificent bird has a wonderfully long and broad tail, quite as remarkable as that of Reeves' Pheasant. The crest of this beautiful bird is scarlet, the tippet is snowy-white, each feather being tipped with velvety-black, the shoulders are rich shining green, the abdomen pure white, and the tail is white, barred with dark green, and strikingly varied with the scarlet tips of the upper tail-coverts, which are much elongated.

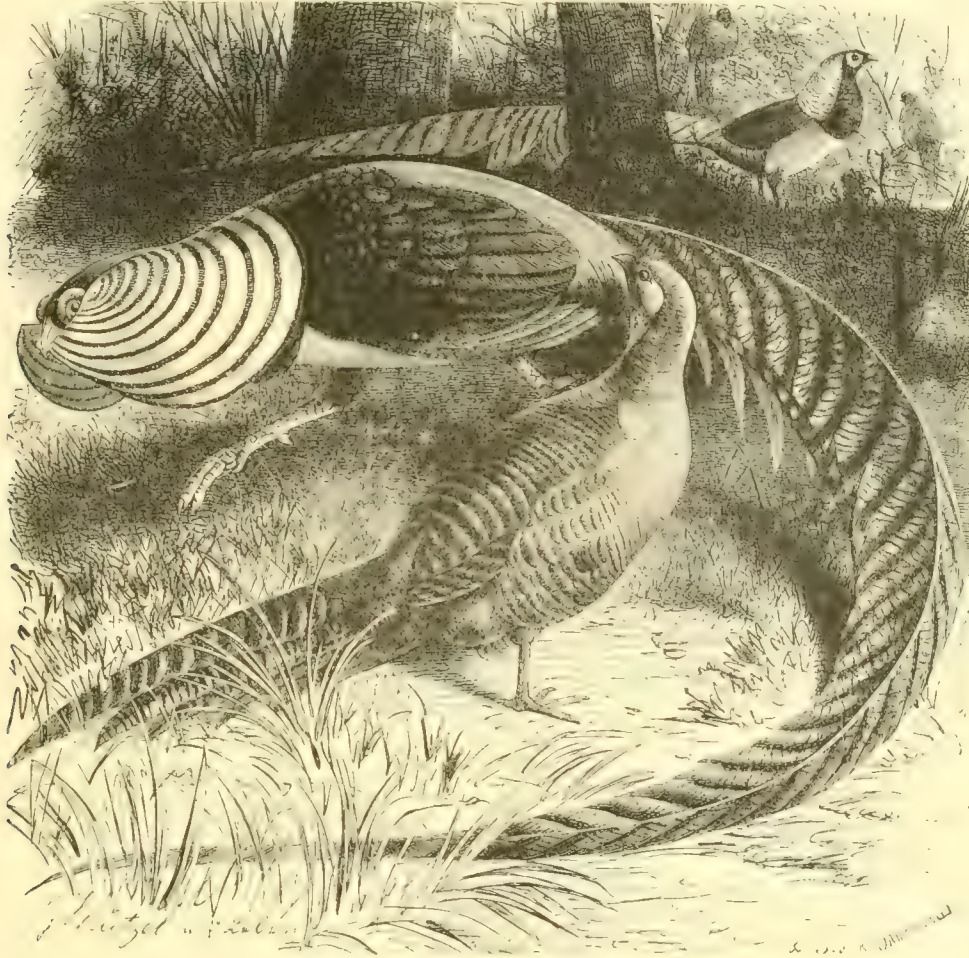
THE SILVER PHEASANT is another inhabitant of China, and is found chiefly in the northern portions of that country.

It is one of the largest and most powerful of the tribe to which it belongs, and is said to be a match for a game-cock in fair combat. It is a hardy bird, and, like the Golden Pheasant, has been turned loose into preserves, but with even less success. The weight of the bird is generally too great in proportion to its strength of wing, so that it does not readily raise itself from the ground, and thereby runs a risk of being devoured by the carnivorous quadrupeds that infest every preserve. Moreover, it is so large, so strong, and so combative, that it fights the common Pheasants, and drives them out of the coverts, so that at present we have to content ourselves with rearing it under the safe protection of brick and wire.



GOLDEN PHEASANT.—*Thaumalea picta*.

The crest on the top of the head is deep purple-black, and the naked skin round the eyes, which forms a kind of wattle over the nostrils and below the chin, is a bright scarlet. The upper surface of the body is pure silver-white, delicately pencilled with wavy black lines. The tail is also white, pencilled boldly with black, except the two central feathers, which are wholly white, long, and curved. The breast and abdomen are of the same deep purple-black as the crest. The colors of the female are quite dissimilar, so that the bird would hardly be



AMHERST'S PHEASANT.—*Thaumalea amherstiae*.

recognized as belonging to the same species. She is much smaller in size, has a smaller crest, and a shorter tail, of a brown color, streaked on the outer feathers with black and white. Instead of the silvery-white of the male, her back is grayish-brown, irregularly marked and waved with narrow black bars. The breast and abdomen are grayish-white, marked with brown and barred with black. (For illustration, see page 470.)

THE very handsome FIREBACK is an Asiatic bird, inhabiting Sumatra, and in all probability several other neighboring localities.

The popular name of Fireback is very appropriate, being given to the bird on account of the fiery red feathers which decorate a considerable portion of the back. It is remarkable for the great size of the naked skin about the eyes, which nearly covers the whole head, running over the ears and forehead, and descending well below the chin. The color is of a bluish purple during the life of the bird, but after its death the color darkens into dark brown, as is generally the case with bare skin both in beasts and birds, and in the stuffed species it shrinks, like wetted leather, and entirely loses its former fulness and shape.

The head is decorated with an elegant crest of upright feathers, their shafts being nearly devoid of web, and expanding at the extremities into a number of delicate barbs. The general



SILVER PHEASANT.—*Euplocomus nycthemerus*.

color of the bird is rich deep satiny-violet, appearing black except in certain lights, and the feathers of the lower part of the back are flaming orange-red, the depth of hue being changeable, according to the light. The tail is smaller than that of the domestic cock, and the central feathers are snowy-white, the others being deep green glossed with purple. The total length of the adult male is

about two feet. The female is smaller, and her plumage is warm cinnamon-brown above and grayish-white below.

BARN-DOOR POULTRY.

WE now arrive at the typical genus of the Gallinæ, to which the ordinary barn-door poultry, with all its multitudinous varieties, belongs. Our first example of this genus is the beautiful SONNERAT'S JUNGLE FOWL.

This fine bird is a native of India, and is found chiefly in the wooded districts. Although smaller than the common domestic fowl, it is a wonderfully powerful bird in proportion to its size, and so fierce and determined a combatant that the native sportsmen, who set great store upon fighting cocks, always prefer a Jungle Cock as their champion. As in general appearance it is something like the domestic fowl, some persons have supposed that it is the stock from which our poultry were derived. The Bankiva Fowl, however, is thought with more reason to be the original progenitor of these useful birds. The very peculiar formation of the hackles affords a good reason for believing that the domestic fowl is not the offspring of Sonnerat's Jungle Fowl. The webs of the hackles and upper tail-coverts are dark gray, but their shafts are bright orange, dilating in the centre and at the tip into flat, shining horny plates of a brilliant orange hue, which give a peculiar splendor to the plumage, and are discernible at a considerable distance, their tips being rounded instead of lancet-shape.

The voice of this bird is rather startling, for at first sight it looks so like a game-cock, that its crow strikes the ear in a very absurd manner. Every one knows the ludicrous attempts made by a young cock to crow like his elders; how he breaks down just when he thinks he is doing best, like a young lad with a cracked voice, trying to talk with a manly intonation, and going unexpectedly from hoarse bass to sharpest treble. Give the young cock a sharp

attack of whooping-cough, and that will afford a tolerably good notion of the crowing of this Jungle Fowl.

The head of this bird is adorned with well-developed wattles, deeply notched at the tip. The beautiful hackles have already been described, with their flattened ends shining like the gold coins gleaming on the dark tresses of Oriental beauties. The back and lower portions of the body are deep gray, and the tail is long, arched, and beautifully colored with changing hues of purple, green, and gold. The female is a smaller and very sober-looking bird, without comb or wattles, and devoid of the curious horny hackles that decorate her mate.

THE BANKIVA JUNGLE FOWL is now supposed to be the original stock of the domesticated poultry.

It is a native of Java, and the male very closely resembles the game-cock. It is a splendid creature, with its light scarlet comb and wattles, its drooping hackles, its long arched tail, and its flashing eye. The comb and wattles are of the brightest scarlet, the long hackles of the neck and lower part of the back are fine orange-red, the upper part of the back is deep blue-black, and the shoulders are ruddy chestnut. The secondaries and greater coverts are deep steely-blue, and the quill-feathers of the wing are blackish-brown edged with rusty yellow. The long, arched and drooping tail is blue-black glossed with green, and the breast and under parts black, so that in general aspect it is very like the black-breasted red game-cock.

The domesticated bird is of all the feathered tribe the most directly useful to man, and is the subject of so many valuable treatises that the reader is referred to them for the best mode of breeding, rearing, and general management of poultry. Of the most useful or remarkable of the varieties of this bird we mention the following:—

One of the most famous birds of this class is the Cochin Fowl. It is of enormous size and ungainly appearance. Nothing was talked of but Cochin China Fowls, and the sums given in Europe for these birds, some few years ago, almost rose to the fabulous. A first-rate hunter, or three or four valuable cows, or a tolerable flock of sheep might have been purchased for the money that was freely given for a single Cochin China Fowl.

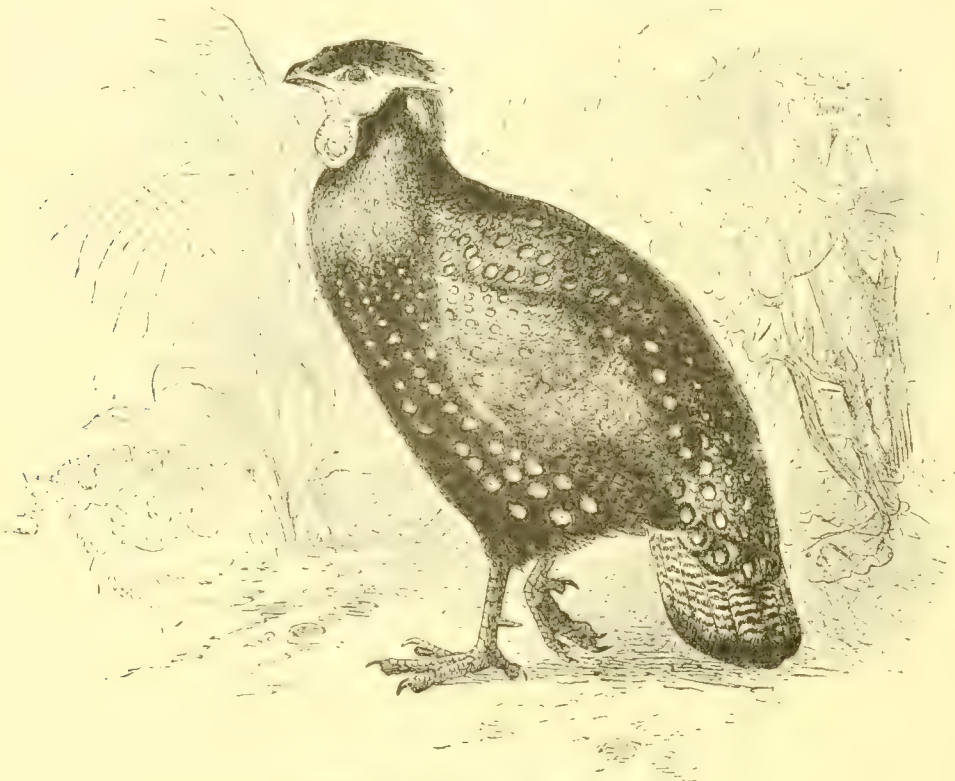
The Game Fowls, certainly the finest of all the varieties, we describe in the following lines. The time has now almost passed away, when these splendid birds were openly trained for combat, and cock-fights were held in every village and town. The law has rightly prohibited this savage amusement, and cock-fighting, like dog-fighting, is now confined to a small and continually decreasing knot of sporting men. For this purpose, the birds are trained in the most regular and scientific manner, as great pains being taken about them as about a race-horse on the eve of the Derby. In order to deprive the antagonist of the advantage which it would gain by pecking the comb, which is very tender and bleeds freely, the comb was cut off and the horny spurs were replaced by steel weapons, long, sharp-edged, and pointed. These precautions were, after all, not so barbarous as they seem on a first view, for the comb was “dubbed” at so early an age that its growth was prevented rather than its substance mangled, and the substitution of metal for horny spurs served to set the combatants on more equal terms, just as a sword sets a small man on an equality with a large one. Irrespective of these advantages, the Game-cock is an hereditary gladiator, delighting in combat, and instinctively practising the art of defence as well as that of assault. So superior is it to the ordinary breeds in these respects, that I have seen a little, old, one-eyed Game-cock cut down, as if with a sword, a great, swaggering barn-door cock that looked as if it could have killed its puny antagonist with a blow and eaten him afterwards.

There seems to be no limits to the courage of the Game-cock, which will attack not only his own kind, but any other creature that may offend it. One of these birds has been known to fly at a fox that was carrying off one of his wives, and to drive his spur deep into the offender's eyes. There are instances innumerable of similar rescues from cats, rats, and other marauders. Sometimes, however, the Game-cock takes upon himself to defend certain localities, and then often becomes dangerous. One such bird, of whose ferocity I have often had personal proof, was accustomed to parade, with the air of an emperor, the yard in which he was necessarily confined, and would fly at every living being that came within the prohibited

precinct. A besom was kept by the door and always used by every one who passed through the yard, for the purpose of repelling the attacks of this savage bird. Many a time have I tried to tire him out, knocking him over with the broom, or pushing him back against the wall, but I was always tired first, and had to vacate the premises, leaving him to get on a water-butt and crow forth his triumph. Sometimes he would slip past the broom, and then the stroke of his spur was no trifle, feeling like the blow of a stone thrown by a strong arm, and leaving a black-and-blue mark for days afterwards.

The flesh of the Game breed is very excellent, but they are troublesome birds to keep, the males always fighting among each other, and having to be separated before they are fully grown. Crosses with the Game breed are common.

An odd-looking creature is the Polish Fowl. Its head is so covered with a monstrous plume of drooping feathers that its features are not more discernible than those of a Skye-



HORNED TRAGOPAN. — *Tetrao satyra*.

terrier under his thick hair. This wealth of cranial plumage seems, however, to impoverish the brain, for the large-crested Polish Fowls are generally stupid birds, and apt to meet with accidents which might easily be avoided.

The Spanish Fowl, a very fine variety, is glossy black, with a very large comb, and notable for the white, naked skin below the ear. It is a very large breed, coming next in size to the Cochin China, and very far surpasses that large but uncouth bird in the symmetry of its form. The flesh of this breed is excellent, and as the hens are regular layers, these birds are deservedly favorites among poultry owners.

A bird whose many excellencies have rendered a town famous is the Dorking Fowl. It is short-legged, round-bodied, plump-fleshed, and remarkable for having at least one, and sometimes two supplementary toes. The Dorking Fowls are excellent for the table, their flesh being peculiarly plump and white, and the hens are remarkably prolific layers.

Lastly comes the odd, quaint, opinionated little Bantam, with its feathered legs, full breast, and bold, fearless carriage. This minikin member of the poultry tribe is, despite his small dimensions, as bold as any of them, and if he thinks himself aggrieved will attack a great Cochin China or Spanish cock with such spirited audacity that he will not unfrequently

come off victor in the contest. The Bantam is of little use to the poultry-keeper, and may be classed among the fancy fowls, of which there are so many and ever-varying breeds.

The common Barn-door Fowl is of no particular breed, no pains being taken to prevent crossing, but is a kind of compound of all the preceding, except, perhaps, the bantam, which ought to be kept away from them as tending to diminish the size of the birds and their eggs. The regular egg trade is a very complicated and curious affair, giving a livelihood to thousands, and possessing a national importance of which few would dream whose only notion of eggs is connected with the breakfast-table or the salad-bowl.

A most singular group of birds now comes before our notice, of which the HORNEED TRAGOPAN affords an example. The males are remarkable for the loose, pendent skin which hangs from the base of the lower mandibles, and can be inflated at the pleasure of the bird, and for the two lengthened protuberances behind the eyes which generally hang listlessly down the cheeks, but can be erected at will, and then look as shown in the illustration. In all these birds the plumage is ample and the tail short. As far as is at present known they are found in the higher and more mountainous districts of Asia, having been taken in Thibet, Nepál, and the Himalayas.

They are all beautifully colored, and the present example may challenge competition with any of the species, if not for absolute brilliancy of plumage, yet for delicacy of tint, and pleasing marking of its feathers. The bare skin around the eyes, together with the wattles and horns are bluish-purple, and the feathers of the crest, together with the chin and back of the neck, are deep black. The upper part of the breast, the neck, and shoulders, are light cinnamon with a dash of carmine and purple, and variegated by the white eye-like tips of the feathers. The wings and part of the back are rich amber mottled with brown, and also decorated with white spots. The spots are largest and most conspicuous upon the flanks. The tail-coverts are also amber-brown, spotted with white, and extend to such a length as nearly to conceal their short rounded tail. In size, the Tragopan about equals a common Spanish fowl.

THE Turkey family, *Meleagris*, is an American one exclusively. Three species comprise the entire group. The Honduras Turkey is a very rare species, having much of the brilliancy of plumage seen in the pheasants.

The common WILD TURKEY (*Meleagris gallopavo*) inhabits the region from North Carolina northward, and from the Atlantic to Texas and Arkansas. In New England, where it was once abundant, it is extinct. In the unsettled portions of the Southwest and Western States, watered by the Mississippi and Missouri, it is abundant; though its final extinction in all quarters is thought to be in the near future. It still occurs along the line of the Alleghanies.

The Wild Turkey is sometimes domesticated, but soon manifests a disposition to seek its liberty.

Late in October it assembles in flocks in the rich bottom lands of the Western rivers, the males keeping apart, and associating in groups of a hundred or less. The females move at the same time, and towards the same point, leading their brood of the season. It is said they avoid the old males, who have a disposition to fight the young birds. They move in these migrations on foot, excepting when a stream is to be crossed. An amusing delay is seen at this point; they don't attempt the crossing for a day or more. Meantime the old males strut about and marshal the forces, as if to make ready for a simultaneous rising. The females and young partake in these demonstrations, emitting a purring noise while strutting up and down the river banks. When all is ready, they mount to the tops of high trees, and at a signal, take flight for the opposite shore.

Wild Turkeys are hunted in a variety of ways. In the spring they are attracted by drawing the air in a peculiar manner through one of the second joint bones of a wing. The sound thus produced resembles the voice of a female, on hearing which the male quickly appears, and is an easy game for the hunter. The cry of the barred owl is imitated, which

alarms the Turkeys, and thus betrays their presence in the darkness of night. A most common method for capturing the Turkeys is by means of a trap, constructed as follows: A covered inclosure is made of trees, about four feet high, closed excepting at one end, where a small opening is left; through which a small trench is dug, sloping very gradually at both ends, into and from the pen. The portion nearest the inclosure is covered. This passageway, the interior of the pen, and the vicinity of the opening, to some distance into the forest, are strewn with corn. The Turkeys, attracted by the corn, follow into the pen, and when they wish to leave endeavor to get out at the sides, but have not intelligence to escape by the opening through which they entered. In this way they are sometimes entrapped in great numbers.

In unsettled parts of the country the Wild Turkeys are seen to associate with tame ones, and to fight them. Wild Turkeys have been known to rear broods in confinement, though rarely.

THE now well-known Turkey is another example of the success with which foreign birds can be acclimatized in European countries, and is one of the creatures that affords great encouragement to the members of the Acclimatization Society to persevere in their valuable efforts. Indeed, if so wild a bird as the Turkey, and one so delicate in its youth, can be thus transferred from America to Europe, there seems every reason that the numerous birds and beasts mentioned by Mr. Buckland in his well-known lecture on this subject, may find a suitable home somewhere abroad.

As to its qualities as a poultry bird, there is little to be said, as every reader will have had practical experience thereof, and the mode of breeding and rearing it belongs to the regular treatises on poultry, and does not come within the province of this work.

Admirable descriptions of the Turkey when wild are given by Audubon and other writers, and their narratives must be condensed very briefly in consequence of our rapidly decreasing space.

The Turkey is spread over many parts of America, such as the wooded parts of Arkansas, Louisiana, Alabama, Indiana, etc., but does not seem to extend beyond the Rocky Mountains. It begins to mate about the middle of February, and the males then acquire those ludicrous gobbling sounds which have caused the bird to be called Gobbler, or Bubbling Jock, by the whites, and Oocooocoo by the Cherokees. In Persia, a pair of these birds, which had wandered there in some strange manner, were thought to speak very good Arabic, though the particular dialect was beyond the comprehension of the hearers.

The female makes her nest in some secluded spot, and is very guarded in her approaches, seldom employing the same path twice in succession; and if discovered, using various wiles by which to draw the intruder from the spot. As soon as the young are hatched, she takes them under her charge, and the whole family go wandering about to great distances, at first returning to the nest for the night, but afterwards crouching in any suitable spot. Marshy places are avoided by the Turkey, as wet is fatal to the young birds until they have attained their second suit of clothes, and wear feathers instead of down. When they are about a fortnight old they are able to get up into trees, and roost in the branches, safe from most of the numerous enemies which beset their path through life.

The great horned owl is, however, still able and willing to snatch them from the branches, and would succeed oftener in its attempts were it not baffled by the instinctive movements of the Turkey. Even the slight rustling of the owl's wings sets the watchful Turkeys on the alert, and with anxious eyes they note his movements as he sails dark and lethal over them in the moonbeams, his large lambent eyeballs glowing with opalescent light; a feathered Azrael impending over them, and with fearful deliberation selecting his victim. Suddenly the stoop is made, but the intended victim is ready for the assault; ducks down its head, flattens its tail over its back, and the owl, striking upon this improvised shield, finds no hold for his claws, and slides off his prey like water from a duck's back. The whole flock drop from the boughs, and are safely hidden among the dark underwood before their enemy has recovered himself and renewed the attack.

The lynx is a terrible foe to the Turkeys, bounding suddenly among them, and as they

hastily rise into the air to seek the shelter of the branches, the lynx leaps upwards and strikes them down with his ready paw, just as a cat knocks down sparrows on the wing. Various other animals and birds persecute the inoffensive Turkey throughout its existence, but its worst enemy is the featherless biped. Snares of wonderful construction, traps, and "pens," are constantly employed for the capture of this valuable bird; the "pen" being so simple and withal so ingenious, that it merits a short description.

A little square hut is made of logs, without window or door. A trench is cut in the ground, some ten or twelve feet in length, passing under the wall of the hut and terminating in its centre. A kind of bridge of flattened logs or sticks is then laid across the trench in the interior of the hut, close to the wall. The roof is then laid, and the pen is complete. Its mode of action is as follows: A quantity of corn is strewn in the pen and along the trench, and is sparingly scattered at intervals so as to lead the Turkeys to the trench. When they see the corn they follow it up, feeding as they go, and finding that the trench is so well supplied, they traverse its length and pass into the pen. There is no trap-door to prevent them from escaping, neither is there need of it. As is the custom of trapped birds in general, they walk round the walls of their prison, trying to find a hole at which to escape, and peering anxiously through the interstices between the logs. When they come to the trench, they never think of going out by the way that they entered, but keeping close against the wall, they walk over the little bridge and recommence their tour. In this way great numbers of Turkeys are taken annually.

The Turkey is a very migratory bird, passing over great distances, and retaining the habit in its tamed state, giving no small amount of trouble to the poultry owner. In describing one of these migrations, Audubon speaks as follows:—

"About the beginning of October, when scarcely any of the seeds and fruits have fallen from the trees, these birds assemble in flocks, and gradually move towards the rich bottom-lands of the Ohio and Mississippi. The males, or, as they are more commonly called, the *gobblers*, associate in parties from ten to a hundred, and search for food apart from the females, while the latter are seen either advancing singly, each with its brood of young, then about two-thirds grown, or in union with other families, forming parties often amounting to seventy or eighty individuals, all intent on shunning the old cocks, who, when the young birds have attained this size, will fight with and often destroy them by repeated blows on the head. Old and young, however, all move in the same course, and on foot, unless their progress be intercepted by a river, or the hunter's dog force them to take wing.

"When they come upon a river, they betake themselves to the highest eminences, and there often remain a whole day, and sometimes two, as if for the purpose of consultation. During this time the males are heard gobbling, calling, and making much ado, and are seen strutting about as if to raise their courage to the pitch befitting the emergency. Even the females and young assume something of the same pompous demeanor, spread out their tails, and run round each other, purring loudly and performing extravagant leaps.

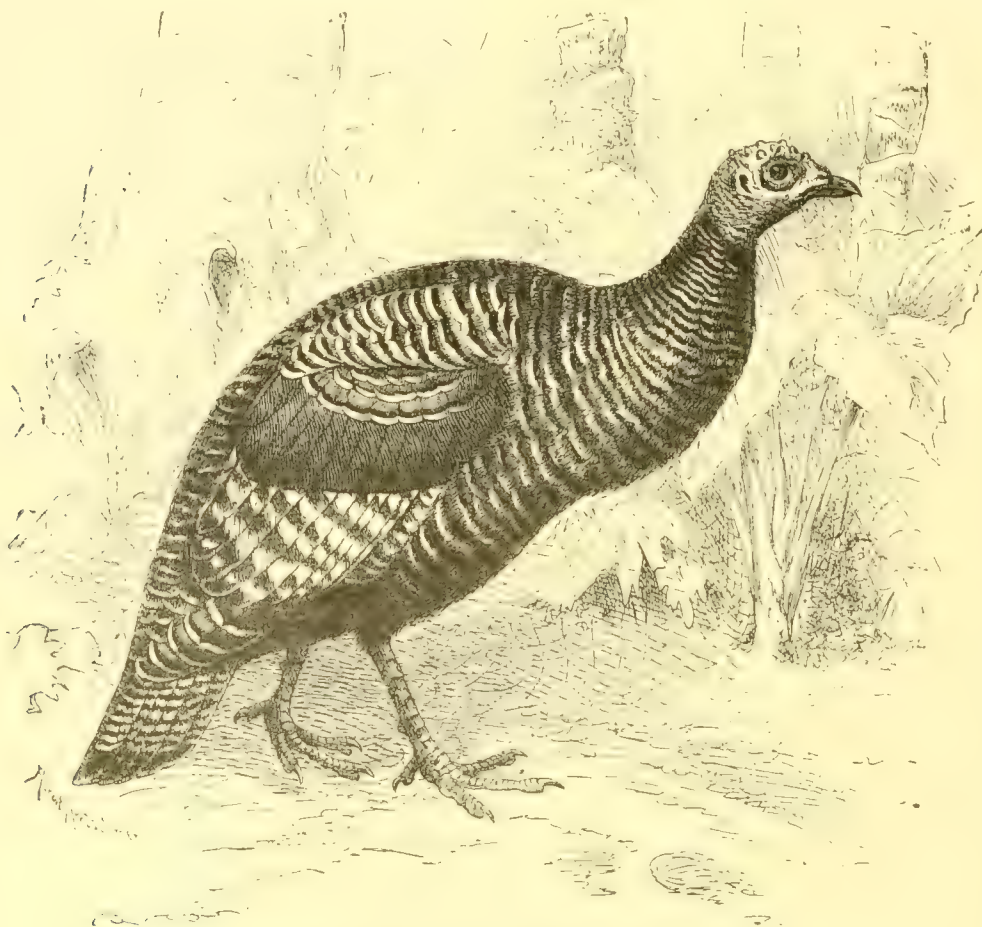
"At length, when the weather appears settled, and all around is quiet, the whole party mount to the tops of the highest trees, whence, at a signal, consisting of a single *cluck* given by a leader, the flock takes flight for the opposite shore. The old and fat birds get easily over, even should the river be a mile in breadth, but the younger and less robust frequently fall into the water, not to be drowned, however, as might be imagined; they bring their wings close to their body, spread out their tail as a support, and striking out their legs with great vigor, proceed rapidly towards the shore; on approaching which, should they find it too steep for landing, they cease their exertions for a few moments, float down the stream until they come to an accessible part, and by a violent effort generally extricate themselves from the water. It is remarkable that immediately after crossing a large stream, they ramble about for some time as if bewildered. In this state they fall an easy prey to the hunter."

The coloring of the wild male Turkey is briefly as follows: The small head and half of the neck are covered with a warty, naked, bluish skin, hanging in wattles from the base of the bill

and forming a long, fleshy protuberance, hanging from the base of the bill and having a tuft of hairs at its tip. This excrescence is capable of elongation under excitement. There is also a long tuft of strong black hairs hanging from the junction of the neck and breast. The general color of the plumage is very beautiful, gleaming with golden bronze, banded with black, and "shot" with violet, green, and blue. In total length this bird measures about four feet.

THE splendid HONDURAS TURKEY is even a more magnificent bird than the preceding species. It is found, as its name imports, in the wooded districts of Honduras and Yucatan.

Two specimens of this splendid bird, a male and female, were brought to aviaries; and I am indebted to the kindness of Mr. T. W. Wood for the following short account of its habits while in a state of captivity, I being at the time unable, through ill health, to visit the



HONDURAS TURKEY.—*Meleagris ocellata*.

aviaries: "In the spring, the male became highly excited and stalked about with his tail spread, wings drooping, and all his feathers puffed up, looking as if he would burst with pride. At such a time his head was thrown back so far and his breast-feathers projecting so far that he could not observe the ground beneath him, and consequently he often stepped into the water, much to his annoyance and the visitor's amusement."

The coloring of this bird is peculiarly fine. The naked skin of the head and neck is delicate violet-blue, covered with a number of round, pea-like knobs, arranged in a cluster upon the crown and of a pale buff-orange, a row over the eye, and others scattered about the neck without any particular arrangement. The wattle hanging from the base of the neck is light orange at its tip. The skin round the eyes and the knobs on the neck are carmine. The hairy tuft on the breast is not seen in this species. The feathers are finely webbed, rounded, and scale-like, and their colors are truly splendid. On the lower part of the neck and upper

part of the back they are bronze-green banded with black and gold; and towards the tail the green assumes a flashing emerald hue, and the gold band becomes wider and darker with fiery-red, like the throat of the ruby-throated humming-bird. The tail-coverts are furnished with bold "eyes" at their tips, and the lower parts of the body are also bronze-green and black, but without the lustre of the upper parts. The primary feathers of the wings are black edged with white, and the secondaries have the outer webs wholly white. The greater coverts are rich chestnut, and the legs and feet are lake. In size this bird is rather smaller than the common Turkey.

The Mexican or Honduras Turkey is a variety of the Western Wild Turkey, differing in the coloration and strength of metallic gloss. In this bird the black, sub-terminal zone of the tail has a more or less distinct metallic bronzing. The tips of the upper tail-coverts have a pale ochraceous, instead of pure white.

This variety is the one from which our domestic Turkey originated, and not the one found in the eastern parts of the United States.

Professor Baird says of the history of this bird as a domestic one: "So involved in obscurity is the early history of the Turkey, and so ignorant do the writers of the sixteenth century appear to have been about it, that they have regarded it as a bird known to the ancients by the name *meleagris* (really the Guinea Fowl, or Pintado), a mistake which was not cleared up till the middle of the eighteenth century. The appellation of Turkey which this bird bears in England arose from the supposition that the bird came originally from the country of that name,—an idea entirely erroneous, as it owes its origin to the New World. Mexico was first discovered by Grigalva in 1518. Oveido speaks of the Turkey as a kind of Peacock abounding in New Spain, which had already, in 1526, been transported in a domestic state to the West India Islands and the Spanish Main, where it was kept by the Christian colonists. It is reported to have been introduced into England in 1541. In 1573 it had become the Christmas fare of the farmer."

It is stated that zoological gardens were kept in Mexico at the time of the Conquest, and that then wild Turkeys were fed out to the animals, so abundant were they. It is thought that these birds were then domesticated, and had been, perhaps, a long time previously, and that they were introduced into Europe about the first of the sixteenth century.

THE prettily spotted GUINEA FOWL, or PINTADO, is, although now domesticated in foreign countries, a native of Africa, and with some exceptions, has much of the habits and propensities of the turkey, which bird it evidently represents.

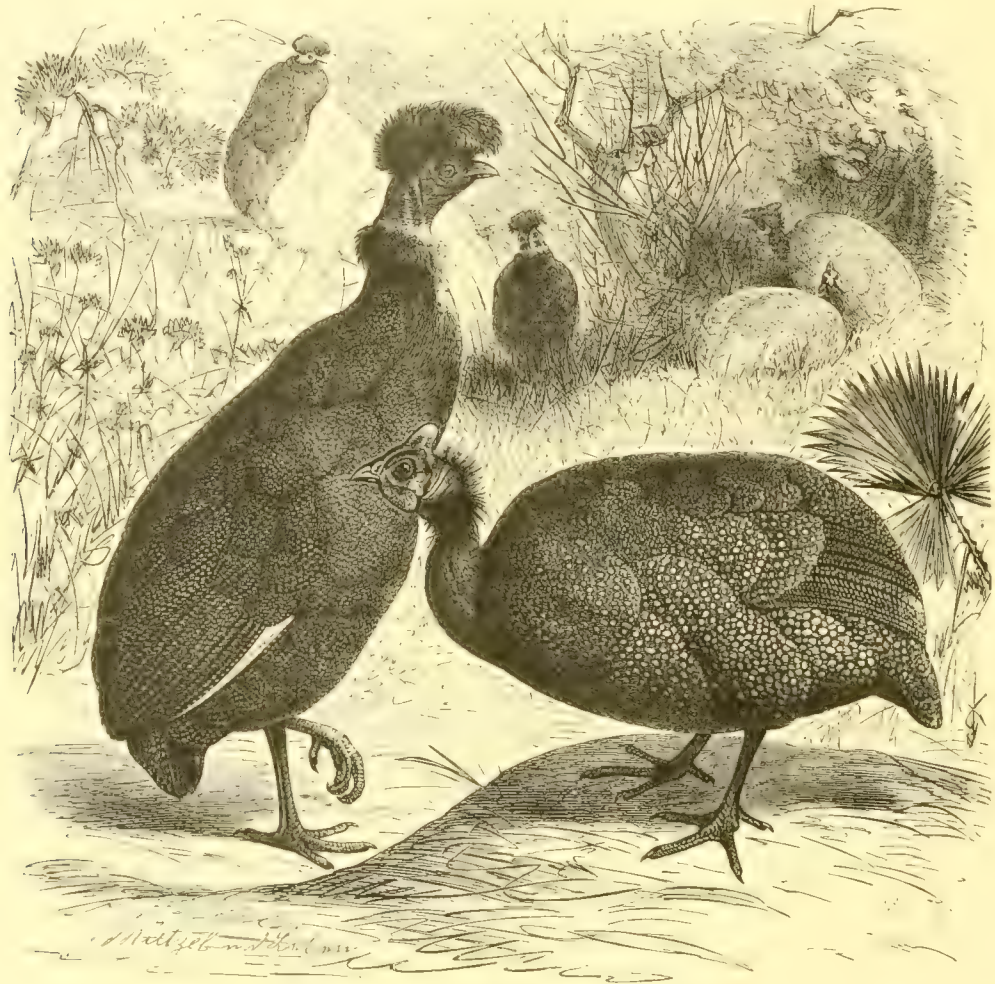
Like the turkey, it is a confirmed wanderer, travelling continually during the day, and perching on the branches to roost at night. It differs from the turkey, however, in its choice of locality, for whereas the turkey always keeps itself to the driest spots, shunning the low-lying lands as fatal to its young, the Guinea Fowl has a special liking for the marshes, and may generally be found among the most humid spots or upon the banks of rivers. It is a gregarious bird, assembling in large bands, which traverse the country in company. The flight of the Pintado is seldom extended to any great distance, as the body is heavy in proportion to the power of wing, and the bird is forced to take short and hasty flights, with much flapping of the wings, and to trust mostly to its legs for locomotion. On the ground the Guinea Fowl is a very swift bird, as is well known to those who have tried to catch it in an open field.

Both in the wild and the captive state the Guinea Fowl is wary and suspicious, and particularly careful not to betray the position of its nest, thus often giving great trouble to the farmer. Sometimes when the breeding season approaches, the female Pintado will hide herself and nest so effectually that the only indication of her proceedings is her subsequent appearance with a brood of young around her. The number of eggs is rather large, being seldom below ten, and often double that number. Their color is yellowish-red, covered with very little dark spots, and their size is less than that of the common fowl. Their shells are extremely hard and thick, and when boiled for the table require some little exertion to open properly.

Every one knows the curious, almost articulate cry of the Guinea Fowl, its "Come-back !

come-back!" being continually uttered wherever the bird is kept, and often affording a clue to its presence. This bird has been imported into America and several of the West Indian islands, where it has entirely acclimatized itself, and has increased so much in numbers as to be reckoned among the game birds and shot accordingly. In the poultry-yard it is not always a desirable inmate, partly on account of its wandering habits, sometimes extending over a mile or two of the surrounding country, and partly because it is so pugnacious, quarrelling with the fowls and pecking them sharply with its hard beak. Still, as its flesh when young is very good, and the cost of its keep very trifling, it is a profitable bird if well watched.

The forehead of the Guinea Fowl is surmounted with a horny casque, and the naked skin round the eyes falls in wattles below the throat. In the male the wattles are purplish-red,



GUINEA FOWL.—*Numida pucherani* and *cristata*.

and in the female they are red without any mixture of blue, and are of smaller size. The legs are without spurs. The pretty spotted plumage of this bird is too well known to need description. Another species of the same genus, the CRESTED GUINEA FOWL, is remarkable for a large crest of arched feathers upon its head, taking the place of the casque of the common species. The color of the Crested Guinea Fowl is blue-black, each feather having from four to six grayish spots. The primary feathers of the wings are oaken-brown, and the edges of the secondaries snowy-white, forming a bold contrast with the extremely dark plumage of the body.

ALTHOUGH less in size than the peacock, and without the wonderful train of that bird, the IMPEYAN PHEASANT, or MONAL, is nearly as splendid a creature, and but for the absence of the train, would even surpass it in the glory of its hues.

On looking at a living or well-stuffed male Monal it strongly reminds the observer of the

humming-birds and looks as if one of those glittering little beings had been suddenly magnified to a thousand times its size. The plumage of the Impeyan Pheasant has the appearance of having been cut out of thin flakes of nacre or mother-of-pearl, their shining polished surface, their deep changing hues of azure, metallic-green, amethystine-purple, and fiery-orange, being just like the effect produced by the finest nacre when rightly cut.

Although possessed of such flashing hues, which are mostly the offspring of a tropical sun, the Impeyan Pheasant inhabits the cold, snowy regions of the Himalayas. This wondrously magnificent bird breeds without difficulty, and endures severe frosts with impunity. As far as is known, it remains entirely in the higher regions of its native land, and never descends to the plains. The food of this bird consists mostly of bulbous roots, which it digs out of the ground with its peculiarly curved and sharp beak. Even in captivity the Impeyan Pheasant will often indulge in many quaint and grotesque actions, especially towards the pairing-time, when all birds like to show themselves off to the best advantage.

The coloring of this gorgeous bird may be briefly described as follows: The head and throat are of a metallic golden-green, and the feathers of the crest are bare shafted for the greater part of their length, and spread at their tips into flattened spatula-shaped ends. The lower part of the neck and top of the back are rich shining purple with green and red reflections, and the feathers are all lancet-shaped. Across the lower part of the back there is a broad band of pure snowy-white, and the tail is reddish-brown, barred irregularly with a darker hue. The rest of the plumage is deep steely blue. The legs are spurred, and the general form is strong and robust. The female is a very sober-plumaged bird, without the lofty crest or gorgeous colors of her mate. Her feathers are mostly dull brown, mottled with gray and ochry-yellow, and there is a broad white patch under the chin and throat. She is also smaller than her mate.

PARTRIDGES.

OF the many members of the *Perdicine* group, we shall take only five examples, the first of which is the well-known PARTRIDGE.

This bird, so dear to sportsmen, is found spread over the greater part of Europe and North America, always being found most plentifully near cultivated ground. It feeds upon various substances, such as grain and seeds in the autumn, and green leaves and insects in the spring and early summer. In all probability this bird, although it may do some damage to the corn-fields, may still be very useful to the farmer by its unceasing war upon the smaller "vermin," that devastate the fields and injure the crops. Small slugs are a favorite diet with the Partridge, which has a special faculty for discovering them in the recesses where they hide themselves during the day, and can even hunt successfully after the eggs of these destructive creatures. Caterpillars are also eaten by this bird, and the terrible black grub of the turnip is consumed in great numbers by the Partridges. Even the white cabbage butterfly, whose numerous offspring are so hurtful in the kitchen garden, falls a victim to the quick-eyed Partridge, which leaps into the air and seizes it in its beak as the white-winged pest comes fluttering unsuspectingly over the bird's head.

The Partridge begins to lay about the end of April, gathering together a bundle of dried grasses into some shallow depression in the ground, and depositing therein a clutch of eggs, generally from twelve to twenty in number. Sometimes a still greater number have been found, but in these cases it is tolerably evident from many observations that several birds have laid in the same nest. Now and then a number of pheasants' eggs are found in the nest of a Partridge, and *vice versa*, the pheasant seeming, however, to be the usurper in most instances. The Partridge is singularly careless of the position of her nest, placing it in the most exposed situations, and sitting upon the eggs with perfect contentment, although within a yard or two of a footpath. Indeed, I have found the nest of this bird, with six or seven eggs, so close to a frequented pathway running through a little copse, that a careless step to one side might have broken the eggs. In color the eggs are not unlike those of the pheasant, being of a smooth olive-brown.

The mother-bird sits very closely, and is not easily frightened from her charge ; and during the last day or two of incubation she is so fearless that she will not suffer herself to be disturbed, and will allow the scythe of the mower to kill her on her nest rather than desert her home. Sitting Partridges have sometimes allowed themselves to be taken by hand. When imminent danger threatens the nest, the mother-bird has been known to carry off the eggs and convey them to a place of safety, executing the task in a wonderfully short space of time. Mr. Jesse mentions one such instance, where there were twenty-one eggs, the whole of which were removed to a distance of forty yards in about twenty minutes. It is probable that the cock bird assisted his mate in her labors.

When the young are hatched they are strong on their legs at once, running about with ease, and mostly leaving the nest on the same day. The mother takes her little new-born brood to their feeding-places, generally ant-hills or caterpillar-haunted spots, and aids them in their search after food by scratching away the soil with her feet. The nests of the wood-ant, which are mostly found in fir plantations or hilly ground, being very full of inhabitants, very easily torn to pieces, and the ants and their larvæ and pupæ being very large, are favorite feeding-places of the Partridge, which in such localities is said to acquire a better flavor than among the lower pasture lands.

The young brood, technically called a "covey," associate together, and have a very strong local tendency, adhering with great pertinacity to the same field or patch of land. When together they are mostly rather wild, and dart off at the least alarm with their well-known whirring flight, just topping a hedge or wall and settling on the other side till again put up; but when the members of the covey are separated they seem to dread the air, and crouch closely to the ground, so that it is the object of the sportsman to scatter the covey and to pick them up singly. They are always alarmed at a soaring bird, whether of prey or not, and squat closely to the ground. When they are very wild and shy, the sportsmen take advantage of this propensity, and fly a kite shaped like a hawk over them, thus inducing them to lie frightened on the ground until the dog can point them in the proper fashion. Even a common, long-tailed, round-shouldered boy's kite will answer the purpose well enough. Some punctilious sportsmen, however, denounce the kite as a trick only worthy of a poacher, and would rather walk after the birds all day without getting a shot than secure a full bag by the use of such a device.

About the middle or end of February, according to the mildness or inclemency of the season, the Partridge begins to pair; and as the male birds are very numerous, they fight desperate battles for the object of their love. While engaged in combat, they are so deeply absorbed in battle, that they may be approached quite closely, as they whirl round and round, grasping each other by the beak, and have even been taken by hand. So strong, however, is the warlike instinct, that, when released, the furious birds recommenced the quarrel.

The females take no part in these battles; waiting quietly, like the strong-minded heroines of romance, to abide the issue of the combat, and to reward the victors with their love. Not that they are devoid of courage, but they reserve its display for a better purpose, namely, the defence of their young. Should a hen Partridge be disturbed while in charge of her little brood, she will endeavor to put them out of danger, and to draw the intruder aside by the exertion of many a crafty while. But should the enemy come upon them too suddenly to be deceived by cunning, she will boldly dash at the foe, and, with self-sacrificing courage, attack with beak, foot, and wing, until the enemy has left the ground, or herself is killed, knowing that her young charge are taking advantage of the time to place themselves in safety. Small though the bird may be, it can strike with considerable force, and has been known to inflict some painful wounds on the faces of human beings who have suddenly disturbed a brood of young.

Though strong and rapid of flight for a short distance, the Partridge loves not to trust itself over much to the air, and cannot fly to any great distance without alighting. When these birds are forced to pass over wide rivers or arms of the sea, they are often so wearied that they fall into the water, and these are mostly drowned, having but little idea of swimming, beyond the idea that they are to sit still and trust to their fortune. A bird thus fallen



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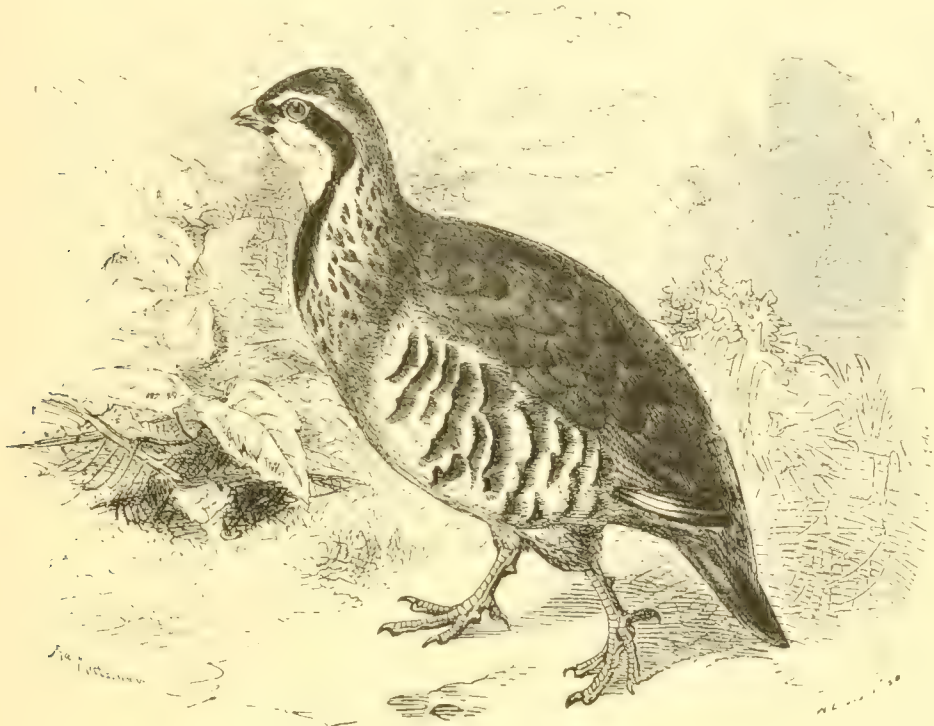
SELMAR HESS, PUBLISHER, N. Y.

PARTRIDGE.

into the sea will sometimes be washed to shore, should the tide be favorable, but in fresh water it is generally drowned, or snapped up by a hawk from above, or a big pike from below, should such fresh-water sharks feed in that locality.

The plumage of the Partridge is brown of several shades above, mingled with gray. The breast is gray, with a horseshoe-like patch of rich chestnut on its lower portion, and the sides and flanks are barred with chestnut. The total length of the male bird is rather more than a foot; the female is smaller than her mate, and the chestnut bars on the flanks are broader than those of the male.

THE RED-LEGGED PARTRIDGE is a larger and stronger bird than the common species, from which it may at once be distinguished by the black bar over the forehead, behind the eye and



RED-LEGGED PARTRIDGE.—*Vaccabis rubra*

round the breast, as well as by the black streaks that pass from the neck towards the tail, and the conspicuous gray, fawn, and black bars on the flanks.

This bird is common in England, France, and Italy, and thrives so well that, like the Norwegian rat, it has in some places fairly driven away the original breed, and usurped their territory. It is much stronger on the wing than the common Partridge, and yet is so swift and active of foot that it cannot easily be induced to rise, but runs away from the dogs with such speed that it often baffles their best efforts to start it within shot range. According to Yarrell, they are difficult of capture even when wounded, as they have a habit of running into rabbit-holes or similar sanctuaries, whence they cannot be dislodged without costing too much of the sportsman's time. These birds seem to prefer heaths and commons to the turnip and corn-fields as frequented by the common Partridge.

The eggs of this species are very numerous, averaging sixteen or seventeen in each nest; and their color is unlike those of the ordinary species, being yellowish-white, with a dash of yellow, and covered with spots of reddish-brown. The food is the same as that of the ordinary breed.

The plumage of this bird is altogether smoother than that of the last-mentioned species. The upper parts of the body are soft brown. Before and behind the eye there is a line of white, and a bold stripe of black runs over the forehead to the eye, then starts from behind

the eye and runs along the sides of the neck over the breast, where it is very broad. A number of black dotted streaks extend from the black stripe so as to form an interrupted band of black over the shoulders. The breast is gray, the abdomen is fawn, and the feathers of the flanks and sides are marked with curved bands of gray, white, black, and fawn. The legs and beak are red. The total length of this bird is between thirteen and fourteen inches. The female is like the male, but smaller and not quite so brightly colored.

THE SANGUINE FRANCOLIN may fairly be reckoned as the finest of its group.

This splendid bird inhabits the great Himalayan range, and is thought to be peculiar to that region. Very little is known of its habits, the fullest account being that given by Dr. Hooker, and quoted by Mr. Gould in his "Birds of Asia."

"This, the boldest of the Alpine birds of its kind, frequents the mountain ranges of Eastern Nepál and Sikkim, at an elevation varying from 10,000 to 14,000 feet, and is very abundant in many of the valleys among the forests of pine (*Abies Webbiana*) and juniper. It seldom or never crows, but emits a weak cackling noise. When put up, it takes a very short flight, and then runs to shelter. During winter it appears to burrow under the hills among the snow, for I have snared it in January, in regions thickly covered with snow, at an altitude of 12,000 feet. I have seen the young in May.

"The principal food of this bird consisting of the tops of the pine and juniper in spring, and the berries of the latter in autumn and winter, its flesh has always a very strong flavor, and is, moreover, uncommonly tough; it was, however, the only bird I obtained at these great elevations in tolerable abundance for food, and that not very frequently.

"The Bhoteas say that it acquires a distinct spur every year; certain it is, that they are more numerous than in any other bird, and that they are not alike on both legs. I could not discover the cause of this difference, neither could I learn if they were produced at different times. I believe that five on one leg and four on the other is the greatest number I have observed."

The coloring and arrangement of their plumage are very complete, and entirely different in the two sexes. In the male, the forehead and a line round the eyes are black, and the crest is gray with buff streaks. The chin and throat are deep blood-red, and the upper part of the breast is white streaked with black. The feathers of the back and whole of the upper surface are slaty-gray, each having a streak of white crossed with black down the centre; and the breast and upper part of the abdomen are light green, streaked with blood-red and white. The lower part of the abdomen is brown-gray. The upper tail-coverts are blood-red, with a long narrow streak of yellow down the centre of each feather; and the tail is white at the tip, and each feather is broadly crossed with blood-red at the base. The bill is black at the tip and red at the base, and the legs and feet are deep pinky-red. The female is a bird of very sober plumage, being reddish-brown, lighter on the head and neck, and freckled with black on the back. The under surface is rather redder than the upper. In size, the Sanguine Francolin about equals an ordinary fowl.

THE odd, short-legged, round-bodied, quick-footed QUAIL is closely allied to the partridge in form and many of its habits. Of these birds there are many species; but as all are much alike, there is no need of many examples.

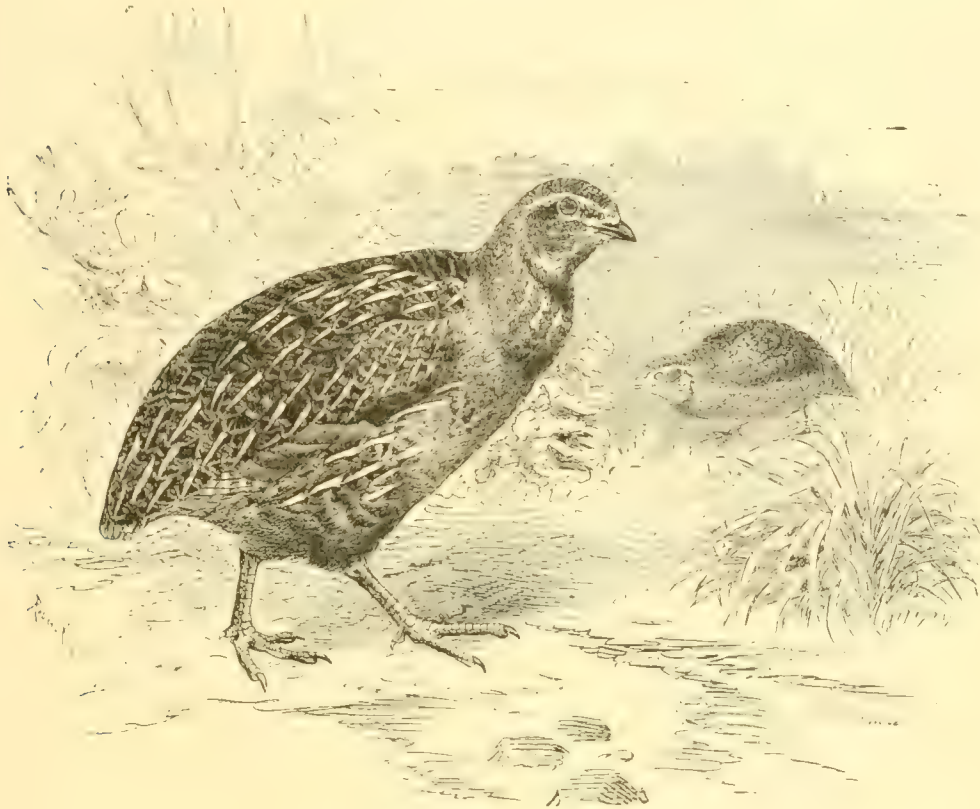
The common Quail is found spread over the greater part of Europe, and portions of Asia and Africa, coming in the summer, though not in very great numbers. In Italy and some of the warmer lands which the Quails traverse during their periodical migrations, the inhabitants look forward to the arrival of the Quail with the greatest anxiety. In those countries they are shot, snared, and netted by thousands; and it is chiefly from the foreign markets that our game shops are supplied with these birds. When fat, the flesh of the Quail is very delicious; and the most approved way of cooking the bird is to envelop it in a very thin slice of bacon, tie it up in a large vine-leaf, and then roast it.

In their migrations the Quails fly by night, a peculiarity which has been noted in the Scriptural record of the Exodus, where it is mentioned, that "at even the Quails came up and

covered the camp." Mr. Yarrell suggests, that the object of this nocturnal journeying may be to save the defenceless birds from the attacks of the numerous birds of prey, which would probably assail them were they to travel during the daytime. There are, however, larger and more powerful birds, which need no such safeguard, and yet are in the habit of travelling by night, as well as the Quail.

It is rather curious, that the males precede the females by several days, and are consequently more persecuted by the professional fowlers.

The male bird does not pair like the partridge, but takes to himself a plurality of wives, and, as is generally the case with such polygamists, has to fight many desperate battles with



QUAIL.—*Coturnix communis*.

others of its own sex. Although ill provided with weapons of offence, the Quail is as fiery and courageous a bird as the gamecock ; and in Eastern countries is largely kept and trained for the purpose of fighting prize-battles, on the result of which the owners stake large sums. The note of the male is a kind of shrill whistle, which is only heard during the breeding season.

The nest of the Quail is of no better construction than that of the partridge, being merely a few bits of hay and dried herbage gathered into some little depression in the bare ground, and generally entrusted under the protection of corn-stalks, clover, or a tuft of rank grass. The number of eggs is generally about fourteen or fifteen, and their color is buffy-white, marked with patches or speckles of brown. The young are able to run about almost immediately after they leave the eggs, and are led by their parent to their food. However wild they may be, many of these birds are killed by a very simple device. The sportsman having marked down a covey of Quails, walks round them in circles sufficiently large not to alarm them, and as he returns towards the spot whence he started, he strikes off for another circle of less diameter. By describing a gradually lessening spiral, he drives all the Quails together in the middle, where they pack closely and suffer themselves to be killed in numbers.

The coloring of the Quail is simple, but pleasing. The head is dark brown, except a

streak of pale brown over the eyes, and another on the top of the head passing towards the nape of the neck. The whole upper surface is brown streaked with yellow-brown, and the feathers with lighter shafts. The chin and throat are white, and around the throat run two semicircular bands of dark brown, their points reaching as high as the ear-coverts and having a black patch in front. The breast is rather pale but warm brown, variegated by the polished straw-color of the shafts, and the remainder of the under surface is ochry-white deepening into chestnut on the flanks. The female may be known by the absence of the two dark semicircles on the throat, which even in the male are not acquired until the second year, and the little dark spots on the feathers of the breast. The total length of the Quail is about seven inches.

AN allied species is found in many parts of North America, and is known by the name of the VIRGINIAN QUAIL. In popular parlance, however, it is generally called the Partridge, greatly to the confusion of young ornithologists. On account of its peculiar cry, it is also called "Bob-White," its clear call-note bearing considerable resemblance to those words.

The Virginian Quail generally keeps itself to the open ground, preferring those spots where grain is plentiful. Sometimes, however, it shelters itself among the trees or brush-wood, but even then seems to pass but little of its time in such retreats. During the winter it gains courage by hunger, approaching human habitations in search of food, and boldly fighting with the poultry for the grain thrown to them. Oftentimes the eggs are placed under the domestic hen, and in that case the young birds are very tame, provided that the foster-mother is of a quiet stay-at-home temper, and not given to roam. Wilson informs us that two young Quails, which had been hatched by a hen, attached themselves to the cows, accompanying them regularly to the field; standing by them when they were milked, retiring with them in the evening, and roosting in the stable. These interesting little birds unfortunately disappeared in the spring.

As the flesh of the Quail is particularly excellent, it is greatly persecuted in the winter time, when it is easily attracted by baits. Ten or fifteen at a time are often caught in a contrivance that much resembles the common sieve-trap, saving that a kind of coop supplies the place of the sieve.

In the wild state the Quail makes its rude nest under the shelter of corn or grass-tufts, and then lays from fifteen to twenty-four pure white eggs. As is the case with the European Quail, the young are able to run about as soon as they are fairly free of the shell, and are guided by their mother to the best feeding-places. The old bird is peculiarly watchful of her charge, and if she should be suddenly surprised, she endeavors to draw off the attention of the intruder by feigning lameness, flapping along the ground as if with a broken wing, in order to gain time for the helpless young to conceal themselves. At night the Quails prefer to roost on some elevated spot in the middle of a field, and it appears that they sit in a circle with their heads radiating outwards and their tails almost touching each other.

The top of the head and the upper part of the breast are warm reddish-brown, the chin is pure white, and a streak of white runs from behind the eye along the neck. The sides of the neck are also reddish-brown spotted with black and white. The upper surface of the body is reddish-brown sprinkled with ashy-gray and black. The wings are gray-brown, and the tertials edged with yellowish-white. The abdomen and lower parts of the breast are yellowish-white, marked with spear-head dashes of black. The female is known by the yellowish brown of the chin and sides of the head. It is a larger bird than the European Quail, being about nine inches long.

THE genus ORTYX embraces numerous species more or less resembling the well-known Bob-White of North America. Most of them are found in Mexico, Central America, and the West Indies. North America and the West India islands contain but one species, which is extremely variable in plumage.

The Virginian Quail, so called, but more properly Bob-White, is, perhaps, one of the most familiar of American birds. Its well-known call is adopted by American naturalists as

Testimonials to the "Tafeln" of Brehm's Thierleben.

The late CHARLES DARWIN writes:—"The illustrations are the best I ever saw in any work. I find it superfluous to enter here into particulars, as I already, in the 'Descent of Man,' have willingly and openly confessed how much I have profited by Mr. Brehm's book, and how highly I esteem it."
 Sir JOHN L. K. Bart., D.C.L.—"You have, I think, done good service in publishing them. They are certainly very admirable."
 W. B. CARR, M.D., LL.D., writes:—"I can quite endorse the favorable opinions already given by distinguished zoologists as to the high character of the illustrations generally."

WE have concluded to submit for public patronage a work with the above title, being a series of exquisite Engravings representing the ANIMAL WORLD, executed with great scientific accuracy, and accompanied by full Descriptive Text, written in popular terms, so as to delight and instruct the people. Anyone who has considered the subject must be at a loss to understand why an ILLUSTRATED NATURAL HISTORY, comprehensive and at the same time popular, has not before this been published in this country. Indeed any lover of animals who has visited the great museums and zoological gardens and has had access to books of engravings in the public libraries, could not fail to remark the wealth of material in existence devoted to this subject. Being confirmed in our conviction of the desirability of such a work, we laid under contribution the best existing authorities for the production of most perfect representations of all the more important living creatures, and among the artists whose delineations will delight the reader, we may mention Harrison Weir, Wolf, Coleman, Fr. Specht, and Mutzel. By far the majority of the engravings in these volumes are from drawings made from the *living* animals, many at the Zoological Society's Gardens in London, England.

We purpose that our patrons shall be aided and interested in their study by such an array of pictures as has never before embellished any Natural History. In numerous instances the engraving is printed in oil-colors, and this portion of the illustrations has been taken charge of by Messrs. L. Prang & Co., of Boston, who we believe rank foremost for high artistic results in this department of printing. These Oleographs were copied under the superintendence of Mr. Prang from the renowned "Tafeln" of "Brehm's Thierleben," so that they may be declared perfectly reliable.

We sought competent advice from various sources as to the most suitable text that should accompany this panorama of handsome Engravings. It was found impossible to embody all the present ideas of naturalists in a single work like this on account of the rapid advances and constant changes in their knowledge of, and habits of thought respecting, the Animal World. And it seemed to us correct that the true object of Zoology is not to arrange, to number, and to ticket animals in a formal inventory, but to inquire into their life-nature, and not simply to investigate the lifeless organism.

What do we know of "Man" from the dissecting-room? Is it not Man, the warrior, the statesman, the poet, etc., that we are interested in? With all veneration which attaches itself to those who are the accredited possessors of abstruse learning, their inordinate use of phraseology detracts too much, we fear, from the fascination that the study of the Animal World would otherwise yield, and as we are not content to have our work restricted to a favored few, we thought the task placed in our hands to be to keep the work free from a repellant vocabulary of conventional technicalities. Our endeavor has been to find an author whose work would be noted for its fund of anecdote and vitality rather than for merely anatomical and scientific presentation, and we arrived at the conclusion that we could not do better than avail ourselves of the Rev. J. G. Wood's comprehensive work—a work most popularly approved by speakers of the English language. It would be superfluous to say one word concerning the standard character of his book, from the pages of which old and young at the other side of the Atlantic have obtained so much instruction and rational amusement. Avoiding the lengthened dissertations and minute classifications of specialists, he presents to his readers in popular terms a complete treatise on the Animal Kingdom of all climes and countries. The one objection that could be urged against it was, that animal life in America might be treated more fully and American forms given more consideration. In order to obviate this drawback and to do full justice to the creatures of our own country, we secured the aid of Dr. J. B. HOLDER, of the American Museum of Natural History in New York, an undoubted American authority, who has adapted Wood's work to American wants and given prominence to American forms of Animal life.

The splendid work on Rodentia, by Allen, Coues, and others, will be fully consulted. The valuable work on North American Birds, by Baird, Brewer, and Ridgway, will be the guide in the treatment of birds. The late arrangement of the classification and nomenclature of North American Birds, by Mr. Ridgway, and the Committee on that subject of the Ornithologists' Union, will be utilized in full. The arrangement of Mammals will be after the latest classification by Professor Flower, of the Zoological Society of London. So that this will be the first popular Natural History worthy of the name that has made its appearance here, which gives due and full recognition to the animate world surrounding us.

Terms of Publication.

The extent of the work will be 68 parts of 28 pages, at the price of 25 cents each. The entire publication will contain 34 Oleographs and 68 Full Page Engravings on Wood, besides many hundreds of exquisite Illustrations interspersed through the text. The parts will be issued every two weeks, and are payable only as delivered. No subscriber's name will be received for less than the entire work, and anyone removing, or not regularly supplied, will please address the Publisher by mail.

N. E.

SELMAR HESS, Publisher, New York.

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a good designation, and we hereby unite with them in a desire to drop the name Quail, which is only appropriately applied to the European migrating bird of that name. Though so common in New England, it is not found in Maine and the northern portions of Vermont and New Hampshire. In most Western States, including New York, it is seen farther north, and it has even been seen near Hamilton, in Southern Canada.

This bird is not migratory, rarely leaving its breeding-places. In severe winters it suffers from hunger, large numbers often succumbing when the snow has buried out of reach the sparsely distributed dried fruits of the forest.

In country towns, where the Bob-Whites are not molested, they become quite tame, and resort to the barn-yards to eat scattered grain with the poultry. They are much esteemed as an article of food of great delicacy.

Dr. Brewer thinks that the large number of eggs is owing to several females laying in the same nest. He thinks that the number of one bird is never more than eight. They have two broods in a season; the second one comes out in August, when the males are engaged in leading the first brood, of which he takes charge when they are not more than half-grown.

Dr. Bachman, of Charleston, S. C., made very successful experiments in domesticating this bird, hatching their eggs under a bantam hen.

An experiment was instituted in Great Salt Lake Valley of introducing a number of these birds, and proved very satisfactory. A variety found in Texas differs in color of plumage; it is there called Common Partridge. Other varieties are noticed; those found in Florida constituting one.

THE MOUNTAIN QUAIL (*Oreortyx pictus*) is a beautiful species; not abundant in any locality, but occurs sparingly in Oregon and California. It is essentially a mountain bird. Its habit of frequenting the chaparral renders it safe from intrusion, and, seemingly knowing this, it seldom takes flight. Its call note, when the flock is scattered, is almost like that of the hen-turkey, or proportionally weaker. The male has a pleasant crowing note. The settlers in Nevada say that these birds were not known there until after the settlement by the whites, and regard their presence now as the result of numbers following the baggage wagons of the travellers to pick up grain left by the cattle.

CALIFORNIA QUAIL (*Lophortyx californica*). This is rather superior, in point of beauty of form and gracefulness of carriage, to the other species. The pompon-like tuft on its head is especially stylish, so to speak. Its local name is Valley Quail, to distinguish it from the preceding. It inhabits the prairies and grain-fields of the cultivated districts, and frequents the thickets that border the streams, usually in coveys of from a dozen to a hundred individuals, except during the breeding seasons, when it is found only in pairs.

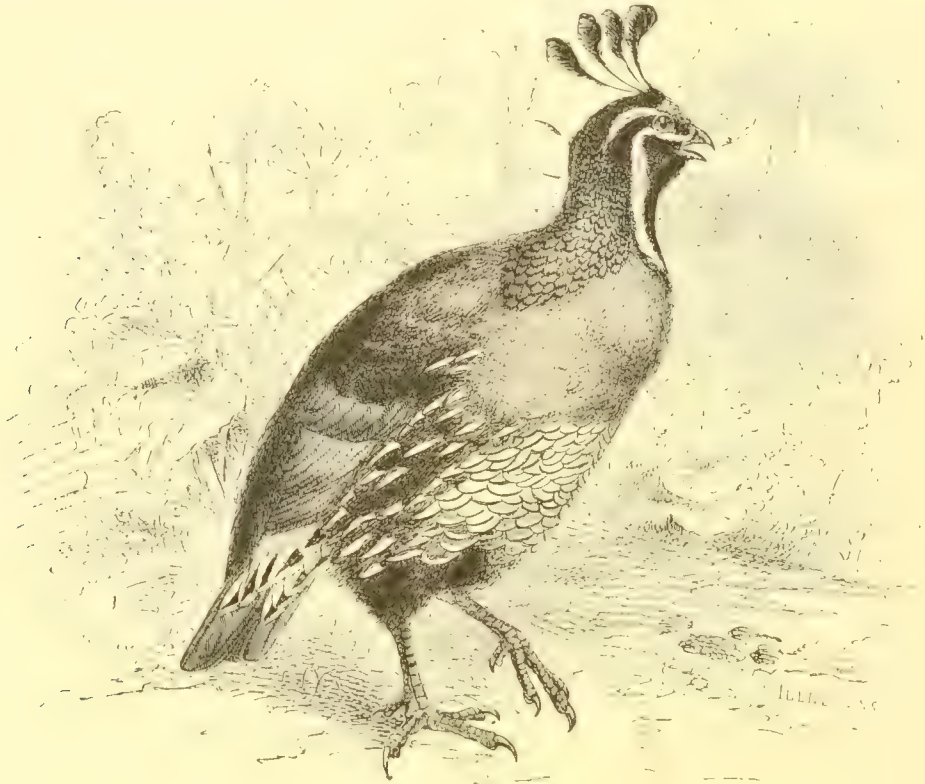
It has the same habit of mounting a log or fence, and uttering its peculiar note, but, instead of the pleasant notes of the Bob-White, its utterance is harsh, and resembles the syllables *kúck*, *kúck*, *kúck-kā*, the first three notes being rapidly repeated, the last prolonged with a falling inflection.

This, as is the case with other species, is not esteemed for eating as is the Eastern or Virginia Quail, Bob-White. It is easily domesticated, and forms a beautiful addition to the poultry-yard or park.

A number of these birds were introduced into Long Island, and promised to thrive, but the numerous gunners soon exterminated them.

GAMBEL'S QUAIL (*Lophortyx gambeli*). This species is confined to a narrow belt of country between the 31st and the 34th parallel of latitude, from the Pecos River, in Texas, to the Sierra Nevada and the contiguous desert in California. It has not been found on the western side of those mountains. It is abundant around the sources of the Gila River, and also common along the Colorado, as far as the mouth of the Gila. It is regarded as less wild than the preceding. The voice of the male is very pleasant; it is like *kaa-wale*, *kaa-wale*, slowly uttered in a low tone, yet the voice is heard at a great distance. This is heard at

evening during short intervals, for about an hour. When the brood is grown and dispersed, the call is said to be *qua-el, qua-el*. Like the other species, it feeds on insects and berries. It is so tame that it fearlessly resorts to the Mexican villages to feed with the poultry around the ranches, and readily becomes partly domesticated. When pursued, it rarely flies, but trusts to its feet as the safest aid to escape. It raises two and, sometimes, three broods in a season. A single brood sometimes has twenty young. It is said to have three distinct notes: the common cry, a single mellow clear *clink*, with a metallic resonance, then a clear loud energetic whistle, resembling the syllables *killink, killink*, heard mostly in the pairing season, and is analogous to the Bob-White of the common Quail. The third is the love song, which, Dr. Coues says, is most unmusical. It is uttered by the male while the mate is incubating.



CALIFORNIA QUAIL.—*Lophortyx californicus*.

This song is poured forth at sunrise and at sunset, from the topmost twig near the spot where his mate is sitting, while with outstretched neck and drooping wings, and plume negligently dangling, he gives utterance to his odd, guttural notes.

The flight of this Quail is remarkably rapid, even, and direct.

SCALED OR BLUE PARTRIDGE (*Callipepla squamata*). This species inhabits the entire valley of the Rio Grande, which embraces every variety of climate. It is always resident where found. It is wild and watchful, and exceedingly swift of foot, rivalling all other species in this respect, and seldom or never resorting to flight for escape. Its quality as an edible is superior. Quite unlike other species, it seems to be intractable, resisting all attempts at domestication, though in Mexico it is said to be in the habit of visiting the ranches to pick up grains.

MASSENA PARTRIDGE (*Cyrtonyx massena*) has somewhat the same range of *habitat* as the preceding, along the valley of the Rio Grande. It is said to be much more retiring than other species, living far from the habitations of man, and preferring thickly-wooded places. Its habits are quite different from all others. Its peculiar form is owing to a habit of carrying

its head resting on its shoulders. It has the reputation of being exceedingly gentle and amiable, and is more tame and more disposed to be domestic than any other, even permitting one to take it up by the hand. Its movements are habitually slow and deliberate.

THE CAPERCAILLIE, also known by the names Cock of the Woods, Mountain Cock, Auerhahn, and Capercaillie, is now mostly frequently found in the northern parts of Europe, Norway and Sweden being very favorite homes.

The Capercaillie is celebrated, not only for its great size and the excellence of its flesh, but for its singular habits just previous to and during the breeding season. Mr. Lloyd has given so excellent an account of these curious proceedings, that they must be told in his own words :—



CAPERCAILLIE.—*Tetrao urogallus*.

“At this period, and often when the ground is still deeply covered with snow, the cock stations himself on a pine and commences his love song, or *play*, as it is termed in Sweden, to attract the hens about him. This is usually from the first dawn of day to sunrise, or from a little after sunset until it is quite dark. The time, however, more or less depends upon the mildness of the weather and the advanced state of the season.

“During his ‘play,’ the neck of the Capercaillie is stretched out, his tail is raised and spread like a fan, his wings droop, his feathers are ruffled up, and, in short, he much resembles an angry turkey-cock. He begins his play with a call something resembling *Peller ! peller !*

pellier! These sounds he repeats at first at some little intervals; but as he proceeds, they increase in rapidity, until at last, and after perhaps the lapse of a minute or so, he makes a sort of gulp in his throat and finishes with sucking in, as it were, his breath.

"During the continuance of this latter process, which only lasts a few seconds, the head of the Capercaillie is thrown up, his eyes are partially closed, and his whole appearance would denote that he is worked up into an agony of passion. At this time his faculties are much absorbed, and it is not difficult to approach him. . . . The play of the Capercaillie is not loud, and should there be any wind stirring in the trees at the time, it cannot be heard at any considerable distance. Indeed, during the calmest and most favorable weather, it is not audible at more than two or three hundred paces.

"On hearing the call of the cock, the hens, whose cry in some degree resembles the croak of the raven, or rather perhaps the sounds, *Gock! Gock! Gock!* assemble from all parts of the surrounding forest. The male bird now descends from the eminence on which he was perched, to the ground, where he and his female friends join company.

"The Capercaillie does not play indiscriminately over the forest, but he has his certain stations (*Tjader-lek*, which may perhaps be rendered, his playing-grounds). These, however, are often of some little extent. Here, unless very much persecuted, the song of these birds may be heard in the spring for years together. The Capercaillie does not, during his play, confine himself to any particular tree, for, on the contrary, it is seldom he is to be met with exactly on the same spot for two days in succession.

"On these *lek*, several Capercaillie may occasionally be heard playing at the same time; Mr. Grieff, in his quaint way, observes, 'It then goes gloriously.' So long, however, as the old male birds are alive, they will not, it is said, permit the young ones, or those of the preceding season, to play. Should the old birds, however, be killed, the young ones, in the course of a day or two, usually open their pipes. Combats, as it may be supposed, not unfrequently take place on these occasions; though I do not recollect having heard of more than two of these birds being engaged at the same time.

"Though altogether contrary to law, it is now that the greatest slaughter is committed among the Capercaillie; for any lump of a fellow who has strength to draw a trigger may, with a little instruction, manage to knock them down. As the plan, however, of shooting these noble birds during their play is something curious, I shall do my best to describe it.

"It being first ascertained where the *lek* is situated, the sportsman proceeds to the spot and listens in profound silence until he hears the call of the cock. So long, however, as the bird only repeats his commencing sound, he must, if he be at all near to him, remain stationary; but the instant the Capercaillie comes to the wind-up, the gulp, etc., during which, as I have just now said, its faculties of both seeing and hearing are in a degree absorbed, then he may advance a little. This note, however, lasts so short a time, that the sportsman is seldom able to take more than three or four steps before it ceases; for the instant that is the case, he must again halt, and if in an exposed situation remain fixed like a statue. This is absolutely necessary; for during his play, excepting during the gulp, etc., the Capercaillie is exceedingly watchful, and easily takes the alarm. If all remain quiet, however, the bird usually goes on again immediately with his first strain, and when he once more comes to the final note, the sportsman advances as before.

"To become a proficient at this sport requires a good deal of practice. In the first place, a person must know how to take advantage of the ground when advancing upon the Capercaillie; for if in full daylight, this is hardly practicable in exposed situations; and in the next, that he may not move forward excepting upon the note which is so fatal to that bird. This is likely enough to happen if it be an old cock that has been previously exposed to shots, for he often runs on with *Peller, peller, peller*, until one supposes that he is just coming to the gulp, when he suddenly makes a stop. If, therefore, a person were then incautiously to advance, he would, in all probability, instantly take to flight."

The nest of the Capercaillie is made upon the ground, and contains eight to ten eggs: when hatched, the young are fed upon insects, more especially ants and their pupæ. The

adult birds feed mostly on vegetable substances, such as juniper, cranberry, and bilberries, and the leaves and buds of several trees.

The color of the adult male bird is chestnut-brown covered with a number of black lines irregularly dispersed, the breast is black with a gloss of green, and the abdomen is simply black, as are the lengthened feathers of the throat and the tail. The female is easily known by the bars of red and black which traverse the head and neck, and the reddish-yellow barred with black of the under surface. In size, the Capercaillie is nearly equal to a turkey.

THE COCK OF THE PLAINS is closely allied to the preceding species.

It is an American bird, being found in the dry plains in the interior of Southern California. Like the cock of the woods, this bird is accustomed during the breeding season to disport himself after a peculiar and grotesque manner, drooping his wings, spreading his tail like a fan, puffing out his crop until the bare yellow skin stands prominently forward, somewhat after the fashion of the pouter pigeon, and erecting the long silken plumes of the neck. Thus accoutred, he parades the ground with much dignity, turning himself about so as to display his shape to the best advantage, assuming a variety of rather ludicrous attitudes, and uttering a loud booming cry that is compared to the sound made by blowing strongly into a large hollow reed.

The nest of this bird is made of dried grasses and small twigs, and is placed on the ground under the shelter of bushes or rank herbage. It is rather carefully made, and generally contains from thirteen to seventeen brown eggs blotched with chocolate on the large end. The Cock of the Plains is a gregarious bird, assembling in little troops in the summer and autumn, and in large flocks of several hundred in number during the winter and spring. The flesh of this bird is eatable, but dark in color and not of a very good flavor.

The male is a very handsome bird, brown on the upper surface and mottled with very dark brown and yellowish-white. The skin of the crop is deep orange-yellow, and on each side of it is a tuft of long and very slender feathers, having the shafts nearly naked, and dotted at the tip with a pencil of black bands. The throat and head are white profusely variegated with black, and the white feathers of the sides are firm, rounded, and of a scale-like form. The shafts of the breast-feathers are black and stiff. In total length this bird measures about twenty-two inches. The female is less in size, is without the feather-tufts on the neck and the scale-like plumage of the sides.

THE SAGE COCK (*Centrocercus urophasianus*), or Cock of the Plains, is the largest of all the family. It seems confined to the sterile regions from the Black Hills to California and Oregon, and from British Columbia nearly to Arizona—but only on those plains where the wild sage (artemesia) grows—hence, the trivial name of the bird. It is naturally tame, and clumsy, but when really alarmed flies with great rapidity, and at considerable distance. Its notes strongly resemble those of the common hen. It seems to be partial to open plains, and localities away from the sea-coast.

Its habits are similar to those of the turkey. In winter it flocks in great numbers; in the spring it goes in pairs, and in the fall in small family groups. It is abundant on the plains of California, and also on the north branch of the Platte.

From feeding so much on the wild sage, its flesh becomes impregnated with a bitter quality, which ruins it for food. The weight of an ordinary-sized Sage Grouse is about six pounds. The large orange-colored, ball-shaped neck ornaments, and the long acuminate tail are characters that are quite distinctive, added to its great size. A very curious anatomical peculiarity is seen in this species. They have no gizzard, having instead a soft membranous stomach, which is not capable of digesting hard food. It is not known to eat grain, but seems to feed wholly on vegetable matter, and that almost exclusively of the wild sage. Possibly the grasshoppers and other soft insects may be eaten.

THE well-known BLACK GROUSE, OR BLACK COCK, is a native of the more southern countries of Europe, especially those localities where the pine woods and heaths afford it shelter, and it is not dislodged by the presence of human habitations.

Like the two preceding species, the male bird resorts at the beginning of the breeding season to some open spot where he utters his love-calls, and displays his new clothes to the greatest advantage, for the purpose of attracting to his harem as many wives as possible. The



BLACK GROUSE.—*Tetrao tetrix*.

note of the Black Cock when thus engaged is loud and resonant, and can be heard at a considerable distance. This crowing sound is accompanied by a harsh, grating, stridulous kind of cry, which has been likened to the noise produced by whetting a scythe. The Black Cock does not pair, but leaves his numerous mates to the duties of maturity and incubation, and follows his own desires while they prepare their nests, lay their eggs, hatch them, and bring up the young. The mother-bird is a fond and watchful parent, and when she has been alarmed

by man or beasts of prey, has been known to remove the eggs to some other locality, where she thinks they will not be discovered.

The nest is a careless kind of structure, of grasses and stout herbage, and is placed on the ground under the shelter of grass or bushes. The female lays about six or ten eggs of a yellowish-gray diversified with spots of light brown. The young are fed first upon insects and their larvæ, and afterwards on berries, grain, the buds and young shoots of trees.

It is a wild and wary bird, requiring much care on the part of the sportsman to get within fair gunshot. The old male which has survived a season or two is particularly shy and crafty, distrusting both man and dog, and running away as fast as his legs can carry him as soon as he is made aware of the approaching danger.

In the autumn the young males separate themselves from the other sex, and form a number of little bachelor establishments of their own, living together in harmony until the next breeding season, when they all begin to fall in love; the apple of discord is thrown among them by the charms of the hitherto repudiated sex, and their rivalries lead them into determined and continual battles, which do not cease until the end of the season restores them to peace and sobriety, and they need fear no foes save the beasts and birds of prey, and their worst enemy, the autumnal European statesman.



PINNATED GROUSE.—*Cuphodon cupido*.

The general color of the adult male bird is black glossed with blue and purple, except a white band across each wing. The under tail-coverts are white. The remarkable form of the tail is caused by the peculiar development of the exterior feathers, three, four, or even five of which are laterally curved, the outermost being the longest and having the most decided curve. Their ends are somewhat squared. The coloring of the female is quite different. Her general color is brown, with a tinge of orange, barred with black and speckled with the same hue, the spots and bars being larger on the breast, back, and wings, and the feathers on the breast more or less edged with white. The under tail-coverts are grayish-white. The total length of the adult male is about twenty-two inches, and that of the female from seventeen to eighteen inches. She also weighs nearly one-third less than her mate, and is popularly termed the Heath Hen.

ANOTHER fine species of this group is the PINNATED GROUSE of North America.

This bird is found almost wholly in open dry plains on which are a few trees or tufts

of brushwood, pines and shrub-oaks being the most favored shelter. Like the greater part of the group, the males "play" at the breeding season, ruffling their feathers, erecting their neck-tufts, swelling out their wattles, and uttering their strange love-cries. At this time the Pinnated Grouse is particularly remarkable for the large size and bright orange color of the naked sacculated appendages which hang at each side of the neck, and which can be filled with air until they are nearly of the same size and color as a Seville orange, or can be permitted to hang loosely along the neck. The males are great fighters on these occasions, and dash fiercely against each other, though to all appearance these combats are more notable for display than for effect, little or no damage seeming to be done or suffered by either party.

Mr. Webber gives the following interesting account of some of the habits of this species:—

"The most extraordinary phenomenon produced by the necessities of the climate, and as a protection against the terrible winds which sweep over that apparently illimitable beach at the approach of winter, consists in the assembling of these birds, from a distance of many miles around, to roost upon the same spot, something after the manner of the wild pigeon. This fact seems also to have escaped M. Audubon's notice.

"At the opening of winter, a spot is selected on the open prairies, in the upper part of the Missouri country, which is more sheltered than the surrounding regions, by the character of the ground, from the biting force of the northeast winds. Here the prairie-hens begin to assemble early in the evening; and by the time dusk comes, an immense number are collected. They approach the scene in small flocks, in a leisurely manner, by short flights. They approach the place of gathering silently, with nothing of that whirr of wings for which they are noted when they are suddenly put up, but they make ample amends when they arrive; as in the pigeon-roost, there is a continued roar, caused by the restless shifting of the birds and sounds of impatient struggle emitted by them, which can be heard distinctly for several miles. The numbers collected are incalculably immense, since the space covered sometimes extends for over a mile in length, with a breadth determined by the character of the ground.

"This is a most astonishing scene when approached in the early part of the night on horseback; the hubbub is strangely discordant and overwhelmingly deafening. They will permit themselves to be killed in great numbers, with sticks or any convenient weapon, without the necessity of using guns. They, however, when frequently disturbed in the first of the season, will easily change their roosting-place; and when the heavy snows have fallen, by melting which by the heat of their bodies, and by trampling it down, they have formed a sort of sheltered yard, the outside walls of which defend them against the winds, they are not easily driven away by any degree of persecution. Indeed, at this time they become so emaciated as to afford but little inducement to any human persecutors, by whom they are seldom troubled, indeed, on account of the remoteness of these locations; from foxes, wolves, hawks, and owls, etc., their natural enemies, they have, of course, to expect no mercy at any time.

"The noise of their restless cluckings, flutterings, and shiftings, begins to subside a few hours after dark. The birds have now arranged themselves for the night, nestled as close as they can be wedged, every bird with his breast turned to the quarter in which the wind may be prevailing. This scene is one of the most curious that can be imagined, especially when they have the moonlight on the snow to contrast with their dark backs. At this time they may be killed by cart-loads, as only those in the immediate neighborhood of the aggressors are disturbed apparently. They rise to the height of a few feet with a stupefied and aimless fluttering, and plunge into the snow within a short distance, where they are easily taken by the hand. In these helpless conditions such immense numbers are destroyed, that the family would be in danger of rapid extermination but that the fecundity of the survivors nearly keeps pace with the many fatalities to which they are liable.

"These birds are distributed over an immense northern territory; and though they are everywhere in the more sheltered regions found to exhibit the propensity to collect in numbers greater or smaller, during the extreme cold weather, in low spots where they will have some shelter from the accidental peculiarities of the locality, yet nowhere else except just upon these wide plains are they to be found in such astonishing congregations as we have here

described. The universal habit of all this family of Gallinaceæ is rather to run and roost in little squads or flocks. Whence this difference in the habits of the same bird, who knows? Ah! whence the difference? That is the question."

The nest of the Pinnated Grouse is a rude structure of grasses and leaves, and placed under the shadow of a bush or a tuft of thick grass. The eggs are brownish-white, and about fifteen in number.

The color of the Pinnated Grouse is mottled with black, white, and chestnut-brown, the male having two wing-like appendages on the neck, composed of eighteen feathers, five long and black, and thirteen shorter, streaked with black and brown. The male is also known by the slight crest on the head, a semicircular comb of orange-colored skin over each eye, and the naked appendages to the neck already described. He is also larger than his mate. The under parts are brown, marked with white in broken transverse bars, and the throat is white with mottlings of reddish-brown and black. The length is about nineteen inches.

The Prairie Chicken, as this bird is also called, a most familiar and valuable species, is confined to the valley of the Mississippi, and eastward to Pocono Mountains, in Pennsylvania. It was formerly common in New England, and some have been seen lately in Martha's Vineyard. In the earliest days of spring the Prairie Chickens separate into small parties, and when the nesting season commences their peculiar movements are commenced. A space is selected, where the males meet and engage in furious battles. At this season they are especially pompous. With outspread tails, and uplifted heads, and their orange-colored neck-bulbs extended to their utmost, they utter their characteristic booming sound. Their wings are declined, like those of the turkey, in such demonstrations. They rise in the air and strike at each other as the game-cock does in combat. On the appearance of a female in answer to their calls, they at once engage in terrific combat. The booming sound is heard before day-break, and also before sunset.

The eggs are said to be from eight to twelve in number. This Grouse is easily tamed, and is domesticated to a certain extent. Mr. Audubon kept a large number, and had several broods of young from them. The old ones fought the turkeys, and even the dung-hill cock—exhibiting great courage. The flight of these birds is strong and swift, though less so than is the case with the ruffed Grouse.

The flesh, as an edible, is gamey, but is esteemed as excellent. The New York market is now constantly supplied with it in the season. The name Prairie Grouse was probably given it from the fact that it habitually seeks the open field, even when hunted.

A variety found in Texas differs somewhat in color of plumage.

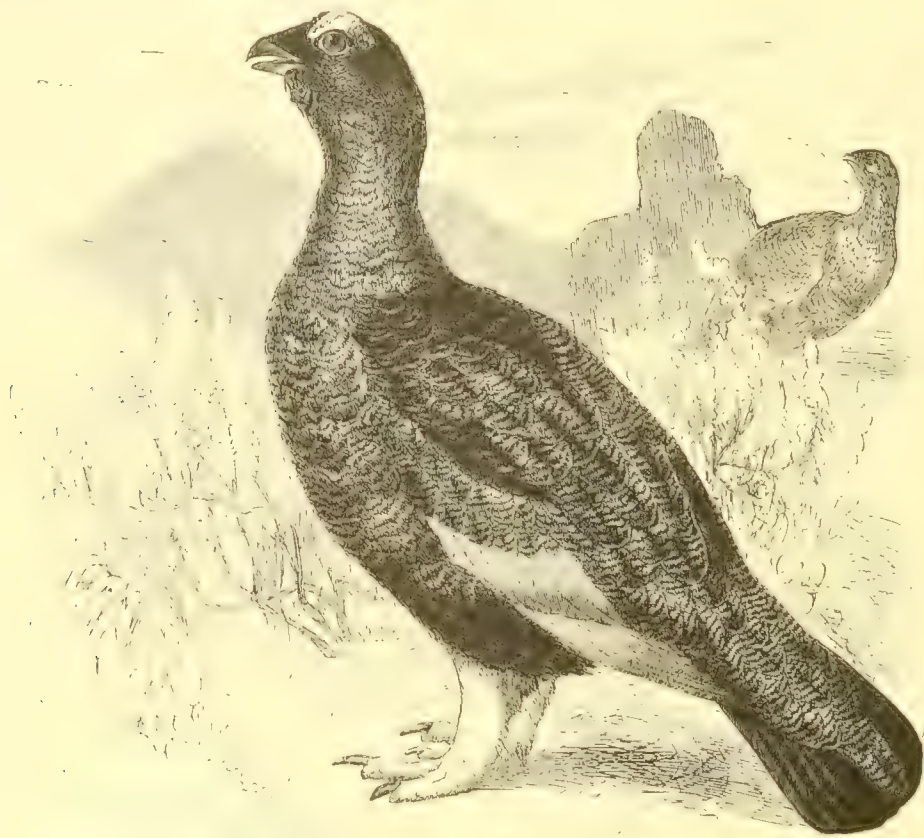
THE RUFFED GROUSE (*Bonasa umbellus*), called Partridge in New England, Birch Partridge in the British provinces, and Pheasant in the Middle States, is found in all parts of the wooded region of eastern North America, from Georgia to Nova Scotia, and from the Atlantic to the Rocky Mountains.

In the spring, this bird feeds on buds of several kinds of trees, the birch being a favorite, which gives a peculiar and agreeable flavor to the meat. The flight of this Grouse is low, straightforward, and continues for a few hundred yards, at the time beating his wings. It rises with a loud, whirring noise when disturbed. Unlike the prairie chicken, it seeks the woods when flushed. Early in May the drumming of the males commences. They stand on a log or elevated spot in a retired part of the woods, lower the wings, expand the tail, and, inflating the whole body, with neck thrown back, strut about pompously. They then begin to strike the wings against the body with a short, rapid motion, producing a sound resembling the beating together of two distended bladders. The rapidity is increased to such an extent the sound appears to be continuous. These sounds may be heard at all hours, but more generally early in the morning. The broad fan-tail of this Grouse is especially beautiful, and is exhibited in full when it is parading before the female at the commencement of the breeding season.

It is a constant resident where it has been bred, and is not, as a rule, migratory. Audubon, however, says, it sometimes, when gathered in considerable numbers in one locality, moves away in the autumn, probably in search of food.

A variety called the Mountain Partridge occurs among the Rocky Mountains. It is one-third smaller than the Eastern bird; its plumage is grayer, and the ruffle shorter. It is known there as the Pine Hen.

Another variety is called Oregon Grouse, and found on the Pacific coast. The same pale, gray plumage is seen in it. The nest, usually placed under a log, and lined with dried grasses, bits of moss, and feathers, has from ten to fourteen eggs. The chickens leave the nest at once, and follow the mother, who clucks and otherwise acts like the domestic hen. The mother exhibits various schemes to lure an intruder away, always giving time for the chicks to hide, when she flies or runs off quickly.



WILLOW GROUSE.—*Lagopus albus*. (Summer Plumage.)

THE SHARP-TAILED GROUSE (*Pediocetes phasianellus*) is a species resembling very closely the common prairie chicken. It inhabits the British provinces, and westward to Alaska. It prefers the open lowlands and thickets near lakes and rivers. At all seasons, it seems to be found in small flocks of a dozen or more. In winter it perches on trees, probably in the same manner as the other species, in a partially hibernating state.

It is said to have its own peculiar method of parading in the breeding season. It selects a clear space, and in numbers, a small covey, run around in a circle of about twenty feet in diameter. This is kept up so persistently a bare space is worn in the grass.

If disturbed, the birds squat closely. Some run to the right and others to the left, when not disturbed, meeting and crossing each other. These dances continue several weeks, or until incubation commences.

In winter, the Sharp-tail penetrates the soft snow, and is able to gather food among the

berries that lie on the ground, and on the buds of the willow and larches. The eggs of a single nest number twelve or thirteen usually.

The Columbian Sharp-tail is found more to the southward. The plains and prairies of Wisconsin and Illinois abound with them. This bird is found much farther west than the prairie chicken, the latter being confined to the region east of the Mississippi valley. A striking peculiarity is seen in the two middle tail-feathers being two inches longer than the others.

THE WILLOW GROUSE (*Lagopus albus*), or WHITE PTARMIGAN, so called, inhabits the fur countries as far north as the seventieth parallel. Between that to the fiftieth it is partially migratory. It is known to breed among the Rocky Mountains on the barren grounds, and along the Arctic coasts. It assembles in vast flocks during the winter, on the shores of



WILLOW GROUSE.—*Lagopus albus*. (Winter Plumage.)

Hudson's Bay. Many thousands of these birds are captured at Severn River. They seek the willows in winter, feeding on the buds. At night, they penetrate the snow and lie concealed, and do the same when pursued by birds of prey, working their way into a mass of snow with considerable facility.

This species is an interesting example of the adaptation of plumage to surroundings as a protective means. The winter plumage is pure white, thus being as well protected as is possible to any object exposed in open plains covered with snow. As the spring comes, and the bare rocks begin to appear, the plumage changes gradually, both by the fading of some coloration and by the moulting of feathers, until the red plumage is fully assumed, closely agreeing with the reddish and gray colors of the rocks. The males are said to assume this darker plumage sooner than the females. The former mount some rocky eminences, and call upon their mates, who are yet buried in the snow, and have not yet changed their colors. These birds are fond of the twilight, and are more frequently seen at such times. An unusual attachment is said to be exhibited by the male of this species for its mate, especially during the breeding time.

THE ROCK PTARMIGAN (*Lagopus rupestris*) is identical with the same-named form in Europe. It is found in the colder portions of North America, especially about Melville peninsula.

THE WHITE-TAILED PTARMIGAN (*Lagopus leucurus*). This species is confined entirely to the region of the Rocky Mountains, inhabiting the highest points. It is common on the snowy range of the Colorado Mountains. It is regarded as an essentially Arctic species, not being met with below the region of snow. But little reliable information is had concerning this bird.

THE RED GROUSE seems to be exclusively confined to the British Islands, and is found in the north of England, Wales, Ireland, and Scotland, and some of the Channel Islands. The birds of this genus are separated from the remainder of the group in consequence of the feathered toes, which are thickly clothed with short plumage, earning thereby the name of *Lagopus*, or Hare-footed.

It inhabits the moors, where heather is in abundance, as it feeds chiefly on the tender leaves of that plant, together with whortleberries, grain, and similar substances. The bird pairs early in the spring, and makes its nest of grass and ling stems, occasionally interspersed with feathers, and places it on the ground under the shelter of a heather-tuft. As soon as hatched, the young are able to run about, and are led to feed by both parents. These birds are greatly persecuted by sportsmen; but, in spite of their annual losses, they increase rather than diminish in number, except in seasons when they are suffering greatly from internal parasites.

The color of the Red Grouse is extremely variable, differing according to the locality or the season of year; and cream-colored and speckled varieties are most uncommon. The ordinary plumage is as follows: In winter the adult male is chestnut-brown upon the upper surface, barred and speckled with black, and diversified by a few feathers of light yellowish-brown. The head and neck are also chestnut-brown, but of a warmer tint than the back. Over the eye is a crescent-shaped patch of light scarlet bare skin, slightly fringed above. The tail is brown, with a tinge of red on the central feathers. The breast is brown, and the remainder of the under surface and flanks is of the same hue, each feather being tipped with white. The short plumage of the legs and toes is grayish-white. In summer the red is lighter, and the body is sprinkled with yellow. The female is smaller and lighter than her mate, with more yellow and less red. In total measurement the male bird is about sixteen inches in length. This bird is also called the Red Ptarmigan and the Brown Ptarmigan.

THE COMMON PTARMIGAN (*Lagopus vulg  ris*) belongs to the same genus. This is the smallest of the European Grouse, and is found in northern and mountainous Europe, especially in Norway and Sweden, and is also an inhabitant of North America.

This bird has a habit of resorting to stones and broken ground covered with lichens, which so exactly harmonize with the colors of its plumage that it is hardly distinguishable from the ground on which it is sitting, and under such circumstances it squats very closely. A person may walk through a flock without seeing a single bird. Mr. McGillivray says: "When squatted, they utter no sound, their object being to conceal themselves; and if you discover the one from which a cry has proceeded, you generally find him on the top of a stone, ready to spring off the moment you show an indication of hostility. If you throw a stone at him, he rises, utters his call, and is immediately joined by all the individuals around, which to your surprise, if it be your first rencontre, you see spring up one by one from the bare ground." A flock of these birds flitting along the sides of a mountain has a very curious effect, their speckled bodies being hardly visible as they sweep along, and when they alight they vanish from view as if by magic. In the winter, too, when the snow lies thickly on the ground, the Ptarmigan assumes a white coat, hardly distinguishable from the snow. When perceived by a hawk, the Ptarmigan has been seen to dash boldly into the deep snow, and to find a refuge under the white covering until its enemy had left the spot.

In the winter, the plumage of the male Ptarmigan is almost wholly white, the exceptions being a small patch behind the eye, the shafts of the primaries, and the bases of the fourteen exterior tail-feathers, which are black. There is also a patch of red, bare skin round the eye. In the summer, the black retains its position, but the white is mottled and barred with black and gray. The length of the adult male is rather more than fifteen inches.



PTARMIGAN.—*Lagopus rupestris*.

OF the *Tetraonidæ*, or Grouse family, there are nine species in North America, several of them having varieties in widely separated portions of the country.

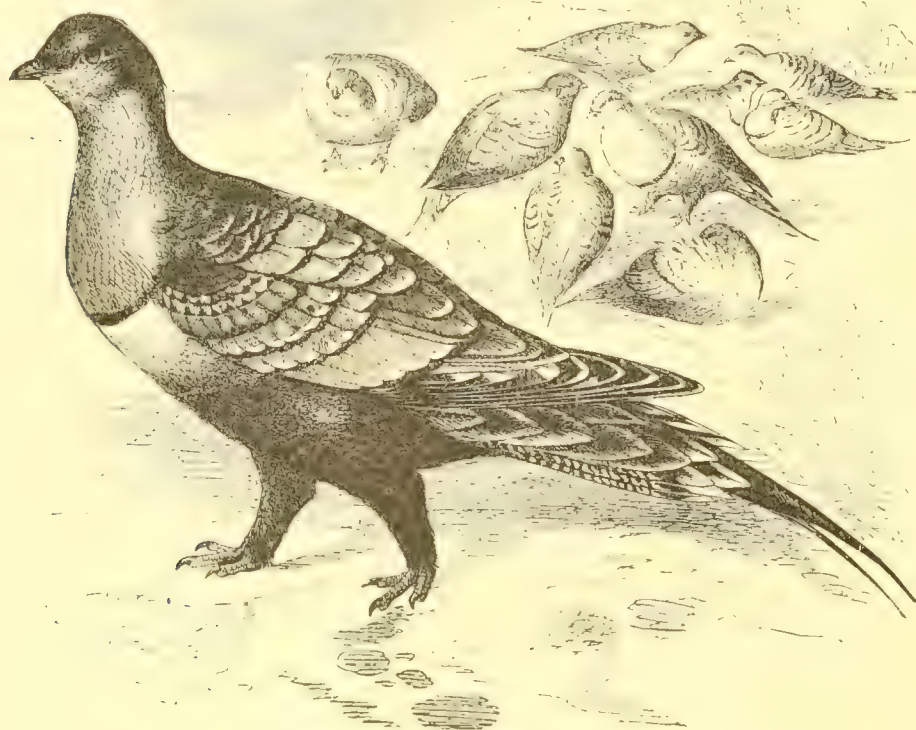
SPRUCE PARTRIDGE, or CANADA GROUSE (*Canace canadensis*), called also Wood Partridge, Black, or Spotted Grouse, is found in the northern United States and as far north as forests are known to extend. It abounds in all the great northern spruce woods and swamps. Its migrations are not extended, as its movements depend more on the presence or absence of food than temperature. Audubon found it breeding in May, in Eastport, Maine, among the spruce and larches. Its habits are something like those of the turkey, and other species of Grouse; strutting before the females, and occasionally rising in the air in a spiral manner, and beating their wings against the body to produce the drumming sound so characteristic of the Ruffed Grouse. Unlike the quails, the male deserts the female after incubation commences, and remains in small flocks.

This bird is curiously averse to being disturbed or driven away. When driven to a tree it persistently remains, though threatened in every possible manner—even allowing itself to be taken by net or noose. It is easily reared in confinement, and soon becomes domesticated. Several varieties of the Spruce Partridge are recognized. Franklin's Grouse is a notable one. It inhabits the valleys of the Rocky Mountains, from the sources of the Missouri River to those of the Mackenzie, and is sometimes seen on the elevated plateaux of Mount Hood and other high snowy peaks. It is said to be confined to the region of the Rocky Mountains and the country between them and the Pacific.

DUSKY GROUSE (*Canace obscurus*). This is only next lower in size than the great Sage Grouse, being considerably larger than the other species. Dr. Newberry regards it as the handsomest of all the American birds of this family, though we must give the palm to our

familiar house species, the Ruffed Grouse, or "Partridge" of the New England country-side. Mr. Say, the accomplished naturalist, first discovered this bird in 1820. In the spring, the male sits on a branch and utters its peculiar booming call, which is so ventriloquial in effect that one is sure to be deceived and misled by it. Dr. Cooper, of California, testifies that it may be directly overhead, and yet its voice so deceive you as to appear to be at a distance.

The Dusky Grouse inhabits the mountains about Sante Fé, in New Mexico, and in the Sierra Nevada. It has been seen in considerable numbers around Salt Lake City. It has been seen in Oregon in considerable numbers. The Black Hills of Nebraska is the most eastern limit of its range. The love-notes are said to be deep, soft, plaintive, but unmusical—in our view of it—for, no doubt, the gentle creature that sits near by on her nest has different appreciation of their nature. These notes are likened to the sound produced by rapidly and by jerks swinging a ratan.



SAND GROUSE.—*Pterocles exustus*.

A most remarkable habit in winter is noticed: These birds retire to the tops of the loftiest fir-trees and pass the season in nearly a complete state of hybernation. The flesh of this Grouse is said to surpass in flavor and delicacy that of the famous Ruffed Grouse.

A variety called the Oregon Dusky Grouse is found inhabiting the country along the coast from the Columbia River to Alaska, where it is known as the Blue Grouse, and in some quarters, Pine Grouse. The orange-colored featherless sacks that are seen on the sides of the neck in this bird are known to produce their peculiar notes by alternately contracting and expanding. The sombre color of its plumage is effective in its efforts at concealment, as when it is pursued it flies directly to the top of some tall fir-tree, and hugs closely the limb on which sits; which limb is very much like the plumage in color.

Another variety is called Richardson's Dusky Grouse, named after the celebrated traveller and naturalist, Sir John Richardson. It is the form that inhabits the interior of British North America. It is met with in the pine woods on the slopes of the Rocky Mountains.

THE SAND GROUSE are mostly found in the sandy deserts of Africa and Asia, though one or two species are inhabitants of Europe. The wings of all these birds are long and

pointed, denoting considerable powers of flight, and in many species the two central feathers of the tail are much elongated and project beyond the others.

These birds are mostly gregarious, assembling in large flocks, but still retaining a division into pairs. One species, the Pin-tailed Sand Grouse, is found in such vast multitudes that they are killed by boys, who arm themselves with sticks and fling these rude missiles at the winged armies. It has been suggested by some writers that this bird is the quail of Scripture. The Sand Grouse runs with considerable rapidity; and as the legs are very short, and the body consequently carried close to the ground, the effect produced very much resembles the toy mice which are wound up like watches, and run about the floor. When coming directly towards the observer, the bird has a very comical aspect, the feet being hardly visible beneath the broad body, and the steps being very short, quick, and tripping.

The female Sand Grouse makes no nest, but lays her eggs, generally about two or three in number, on the bare ground. The young birds are very strong of foot, and as soon as their plumage has dried, after their exit from the shell, they run about with their mother, and can afterwards lead a vagrant life.

The male bird has its forehead whitish, then a black patch and then white. The upper part of the plumage is dusky brown, mottled with buff; and its tail is buff, barred profusely with blackish-brown, the tip being buff, and the last bar very broad and black. The breast is pale buff, and between the breast and abdomen runs a semilunar white band, reaching up to the shoulders. Just below the white there is an equally conspicuous black band, also running up under the wings to the shoulders. The abdomen and flanks are pale buff, mottled transversely with black-brown. In the female the plumage is of a more yellow cast, the black patch on the forehead and black band round the chest are wanting, and the white band has a gray tinge.

ANOTHER curious group of birds is known by the title of Sheath-bills, on account of the remarkable sheath of horny substance, which is situated on the base of the bill, and under which lie the nostrils. The use of this appendage is rather obscure. The whole of the bill is short and stout, and it is considerably arched towards the tip.

One of the commonest species of this group is the WHITE SHEATH-BILL, a native of Australia, New Zealand, and neighboring islands.

This bird is almost exclusively found upon the coasts, finding its food among the mollusks, small crustacea, and bestranded fish and other similar substances. Perhaps, under some circumstances, it may subsist on carrion, and thereby give an evil flavor to its flesh, as there are very contradictory reports as to its value for the table, some specimens having been of so vile an odor that even the sailors, with their proverbial appetites for fresh meat, could not touch the ill-savored flesh, while in other cases the bird is reported to be of excellent quality, and equal to duck in tenderness and flavor. The legs of the Sheath-bill are rather long in proportion to the size of the body; and as it always frequents the sea-side, running in and out of the water in search of its food, and possesses many of the habits of the waders, it has been classed by some naturalists among these birds.

The White Sheath-bill is a pretty bird, its whole plumage being pure white, and the legs reddish-black. The generic name, *Chionis*, is derived from a Greek word, signifying snow, and is given to this bird in allusion to its pure snow-white plumage. In total length the adult male measures about fifteen inches.

THE ELEGANT TINAMOU is one of the handsomest, though not the largest, of the family to which it belongs.

The Tinamous are only found in South America, where they are tolerably common. The word Tinamou is the native name for these birds; and as they bear some resemblance to bustards, the generic title of *Tinamotis*, although rather a barbarous combination of languages, is sufficiently appropriate.

The Tinamous are found in the open fields, preferring those which lie on the borders of woods. They are very seldom known to perch on branches, and are not very willing to use

their wings, trusting rather to the swiftness of their legs. Of one species of Tinamou, Mr. Darwin writes as follows: "These birds do not go in coveys, nor do they conceal themselves like the English kind. It appears a very silly bird. A man on horseback, by riding round and round in a circle, or rather in a spire, so as to approach closer each time, may knock on the head as many as he pleases. The more common method is to catch them with a running noose or little lasso, made of the stem of an ostrich's feather, fastened to the end by a long stick. A boy on a quiet old horse will frequently thus catch thirty or forty in a day."

The food of the Tinamous consists mostly of grain; and after the fields of corn and maize are sown, these birds do considerable damage by running over the ground, and picking out all the seeds which have not been entirely covered by the soil. The eggs of these birds are about seven or eight in number, and are laid in the centre of some convenient tuft of herbage.

The Elegant Tinamou is a native of Chili, and is rather larger than the generality of its kind, as it slightly exceeds a grouse in dimensions, and has a much longer neck. The head and neck are light grayish buff with short delicate longitudinal streaks, and upon the head there is a long curved crest, each feather being brown with a dark streak along its centre. The back is spotted and barred with buff and blackish-brown, and on the breast and general under-surface the feathers are irregularly barred with the same hue, the bars being wider and darker on the flanks.





OSTRICH.—*Struthio camelus*.

CURSORES, OR RUNNING BIRDS.



WITH the OSTRICH commences a most important group of birds, containing the largest and most powerful members of the feathered tribe, and termed *Cursores*, or *Running-Birds*, on account of their great speed of foot and total impotence of wing. All the birds belonging to this order have the legs developed to an extraordinary degree, the bones being long, stout, and nearly as solid as those of a horse, and almost devoid of the air-cells which give such lightness to the bones of most birds. By the aid of the microscope, the peculiar character of the bone is clearly shown, though the bone of an Ostrich or Cassowary is very different from the same bone in a fowl or a pigeon. The wings are almost wanting externally, their bones, although retaining the same number and form as in ordinary birds, being very small, as if suddenly checked in their growth. The huge wing muscles which give such prominence to the breast of flying birds, are therefore not required, and the breast-bone is consequently devoid of the projecting keel, and is quite smooth and rounded.

The common Ostrich is so well known that little need be said of its habits, its use to mankind, and the mode of hunting it, a very brief description being all that is necessary.

This magnificent creature, the largest of all existing birds, inhabits the hot sandy deserts of Africa, for which mode of life it is wonderfully fitted. In height it measures from six to eight feet, the males being larger than their mates, and of a blacker tint. The food of the Ostrich consists mostly of the wild melons which are so beneficently scattered over the sandy wastes, absorbing and retaining every drop of moisture condensed in the comparatively cool temperature of night, or fallen in the brief but severe rain-storms which serve to give new vigor to the scanty desert vegetation and to replenish the rare water springs.

Besides these melons, which the Ostrich, in common with the lion and other inhabitants of the desert, eats as much for drink as for food, the bird feeds on grasses and hard grain, which it is able to crush in its powerful gizzard, the action of which internal mill is aided by stones and other hard substances, which the Ostrich picks up and swallows just as ordinary grain-eating birds swallow sand and small pebbles. In captivity the Ostrich will swallow almost anything that comes in its way, such as brickbats, knives, old shoes, scraps of wood, feathers, and tenpenny nails, in addition to the legitimate stones. It has even been seen to swallow in succession a brood of ducklings; but whether in that case the bird was impelled by normal hunger, whether it was afflicted by a morbid appetite, or whether it was merely eating the young birds for sheer mischief, are questions open for consideration.

The Ostrich is a gregarious bird, associating in flocks, and being frequently found mixed up with the vast herds of quaggas, zebras, giraffes, and antelopes which inhabit the same desert plains. It is also polygamous, each male bird having from two to seven wives. The nest of the Ostrich is a mere shallow hole scooped in the sand, in which are placed a large number of eggs, all set upright, and with a number of supplementary eggs laid round the margin.

The eggs are hatched mostly by the heat of the sun; but, contrary to the popular belief, the parent birds are very watchful over their nest, and aid in hatching the eggs by sitting upon them during the night. Both parents give their assistance in this task. The eggs which are laid around the margin of the nest are not sat upon, and consequently are not hatched, so that when the eggs within the nest are quite hard, and the young bird is nearly developed, those around are quite fit for food. Their object is supposed to be to give nourishment to the young birds before they are strong enough to follow their parents and forage for themselves.

Each egg will weigh on the average about three pounds, being equal to two dozen ordinary fowl's eggs. Yet one of them is not thought too much for a single man to eat at a meal, and in one instance two men finished five in the course of an afternoon. The approved method of dressing Ostrich eggs is to set the egg upright on the fire, break a round hole at the top, squeeze a forked stick into the aperture, leaving the stem protruding, and then to twist the stick rapidly between the hands so as to beat up the contents of the egg while it is being cooked. Within each egg there are generally some little smooth bean-shaped stones, which are composed of the same substance that forms the shell.

These eggs are put to various useful purposes. Not only are they eaten, but the shell is carefully preserved and chipped into spoons and ladles, or the entire shell employed as a water vessel, the aperture at the top being stuffed with grass. The mode of filling these shells from sandy pools is ingenious and simple. The business of procuring water is entrusted to the women, each of whom is furnished with a hollow reed, a bunch of grass, and her egg-shells. She makes a hole in the bed of the water-pool as deep as her arms will reach, ties the bunch of grass at the end of the reed, pushes it to the bottom of the hole, and rams the wet sand tightly round it. After waiting a little for the water to accumulate, she applies her mouth to the upper end of the reed, drawing the water through the tuft of grass at the bottom and so filtering it. Having filled her mouth with water, she puts another reed into the egg-shell, and pours the water from her mouth into the shell. In this manner a whole village is supplied with water, the shells being carefully buried to prevent evaporation.

The Bushmen make terrible use of these water shells. When they have determined on a raid, they send successive parties on the line, loaded with Ostrich egg-shells full of water,

which they bury in spots known to themselves alone. The tiny but resolute little warriors start off on their expedition, get among the dwellings of their foes, carry off as many cattle as they can manage, shoot the rest with poisoned arrows, and then retiring over the burning desert are able to subsist upon their concealed water stores, while their enemies are totally unable to follow them.

After removing the eggs from the nest, the approved method of carrying them is to take off the "crackers" or leather trousers, tie up the ankles firmly, fill the garment with eggs, and set it astride the shoulders if the captor be a pedestrian, or in front of the saddle should he be on horseback. The shells are so strong that they are able to bear this rather curious mode of conveyance without damage, provided that no extreme jolting take place. A frisky horse will, however, sometimes smash the whole cargo, with disastrous consequences to himself and the vessel in which they were carried.

Among the Fellatahs, an Ostrich egg on the top of a pole fixed to the roof of the hut is the emblem of royalty. The Copts call it the emblem of watchfulness, and carry out the idea by making the empty shell defend their church lamps from the rats, which crawl down the cords by which the lamps are suspended, and drink the oil. Their plan is to run the cord through an Ostrich shell, which is placed at some little distance above the lamp, and, by its smooth polished surface, forms an impassable barrier even to rats.

The feathers are too well known to need description. On an average, each feather is worth about a shilling. The best time for obtaining them is in the months of March and April. The greater number are furnished by means of the poisoned arrow, the native hunter scraping a hole in the sand near the nest, and lying concealed there until the birds come to their eggs, when a few rapid discharges will kill as many birds. Sometimes the hunter envelops himself in the skin of an Ostrich, his natural legs doing duty for those of the bird, and his arm managing the head and neck in such a way as to simulate the movements of the bird when feeding—an imitation so admirably managed that at a short distance it is impossible to distinguish the sham bird from the true. The enterprising little hunter is thus enabled to get among a flock of Ostriches, and to shoot one after the other with great ease, the birds not being able to understand the reason why their comrades should suddenly run away and then lie down, and permitting their enemy to follow them up until they share the same fate.

In some tribes each Ostrich feather worn on the head is an emblem of an enemy slain in battle.

The flesh of the Ostrich is tolerably good, and is said to resemble that of the zebra. It is, however, only the young Ostrich that furnishes a good entertainment, for the flesh of the old bird is rank and tough. The fat is highly valued, and when melted is of a bright orange color. It is mostly eaten with millet flour, and is also stirred into the eggs while roasting, so as to make a rude but well-flavored omelet.

Those who are fond of hunting, employ a more sportsman-like though less profitable mode of procuring this bird. Mounted on swift horses, they give fair chase to the nimble-footed bird, and generally manage to secure it by sending one of their number to head it on its course, and shooting it as it dashes by. The speed of the Ostrich is very great, though hardly so considerable as has been supposed. Some writers set it down as running sixty miles per hour, while others only give it half that rate. When going at full speed, its legs move so rapidly that they hardly seem to touch the ground; and as the pace of a running adult Ostrich is from ten to fourteen feet in length, its exceeding swiftness may be imagined.

For a short distance, the speed of the Ostrich is perhaps quite as great as the higher of the above statements; but it seldom keeps up that astonishing rate of going for more than half a mile, and then settles down into a more steady rate of progress. Being a long-winded bird, it would tire out most horses, did not it always run in curves, so that the horseman by taking a direct course saves much ground, and is able to get a shot as the huge bird comes dashing by him. The reader will be better enabled to understand the great powers of the bird and the curious modifications of its structure better by referring to a skeleton of the bird, than by many pages of description. The long and powerful legs, with

their two toes at their extremity, are firmly yet flexibly jointed into their sockets, and their form is wonderfully adapted for the attachment of the stalwart muscles which move them. Not only are the legs employed for progression, but they can be used with tremendous effect as offensive weapons, knocking over a hyena with a stroke, and deterring even the agile leopard from coming within their reach. The Ostrich always kicks forward, and when hunted with dogs it is sure to inflict severe injuries on young and inexperienced hounds before it is pulled down. The strong sharp claw with which its toe is armed gives dreadful effect to the blow, and, like the claw of the kangaroo, has been known to rip up an antagonist at a stroke. When driven to bay, it will turn and fight desperately even with man, and, unless due precautions are taken, will strike him down and trample upon him. In captivity, the bird has been frequently known thus to assault intruders or strangers, and to be very formidable to them, although to its keeper it soon becomes affectionate.

The voice of the Ostrich is a deep, hollow, rumbling sound, so like the roar of the lion that even practised ears have been deceived by it, and taken the harmless Ostrich for a prowling lion. In its wild state the Ostrich is thought to live from twenty to thirty years.

In the male bird, the lower part of the neck and the body are deep glossy black, with a few white feathers, which are barely visible except when the plumage is ruffled. The plumes of the wings and tail are white. The female is ashen-brown, sprinkled with white, and her tail and wing-plumes are white, like those of the male. The weight of a fine adult male seems to be between two and three hundred pounds.

THE EMEU inhabits the plains and open forest country of Central Australia, where it was in former days very common, but now seems to be decreasing so rapidly in numbers that Dr. Bennett, who has had much personal experience of this fine bird, fears that it will, ere many years, be numbered with the Dodo and other extinct birds.

The Emeu is not unlike the ostrich, which it resembles in many of its habits as well as in its form and general aspect. It is very swift of foot, but can be run down by horses and dogs without much difficulty. The dogs are trained to reserve the attack until the bird is thoroughly tired out, and then spring upon the throat in such a manner as to escape the violent kicks which the Emeu deals fiercely around, and which are sufficiently powerful to disable an assailant. The Emeu does not kick forwards like the ostrich, but delivers the blow sideways and backwards like a cow.

The flesh of the Emeu is thought to be very good, especially if the bird be young. The legs are always the coarsest and worst-flavored portions, the flesh of the back being thought equal to fowl. The natives will not permit women or boys to eat the flesh of the Emeu, reserving that diet for warriors and counsellors. A rather valuable oil is obtained from this bird, as much as six or seven quarts being secured from a fine specimen. It chiefly resides in the skin, but also collects in great quantities about the rump, and between the scapularies and the sternum. It is obtained easily enough by plucking the feathers, cutting the skin into pieces, and boiling them in a common cooking-pot. A still simpler plan, though not so productive, is to toast the skin before the fire, and catch the oil in a vessel as it drips from the heated skin. This oil is of a light yellow color, and is considered very valuable, being largely used as an embrocation to bruises or strains, either by itself or mixed with turpentine. As it does not readily congeal, or become glutinous, it is useful for oiling the locks of fire-arms. The natives prefer to roast the Emeu with the skin still upon it, thinking that the oil makes the flesh more luscious. When quite fresh, it is almost free from taste or smell, and is quite transparent.

The food of the Emeu consists of grass and various fruits. Its voice is a curious, hollow, booming, or drumming kind of note, produced by the peculiar construction of the windpipe. The legs of this bird are shorter and stouter in proportion than those of the ostrich, and the wings are very short, and so small that when they lie closely against the body they can hardly be distinguished from the general plumage.

The nest of the Emeu is made by scooping a shallow hole in the ground in some scrubby spot, and in this depression a variable number of eggs are laid. Dr. Bennett remarks that

“there is always an odd number, some nests having been discovered with nine, others with eleven, and others, again, with thirteen.” The color of the eggs is, while fresh, a rich green, of varying quality, but after the shells are emptied and exposed to the light, the beautiful green hue fades into an unwholesome greenish-brown. The parent birds sit upon their eggs, as has been related of the ostrich. The Emeu is not polygamous, one male being apportioned to a single female.

In captivity, the Emeu soon accommodates itself to circumstances, and breeds freely, and seems as much at ease as if it were in the state of freedom. It is a most inquisitive bird, inspecting every novelty with great attention. “I once,” writes Dr. Bennett, “saw a fine pair of full-grown specimens in a paddock near Sydney. Stopping to observe one which was at a short distance from the fence, he immediately came down to have a look at me. The second bird was some distance off, but, with their usual keenness of vision, on perceiving me viewing his companion, he came stalking down rapidly, and they both stared at me most attentively, stretching out their necks for the sake of making a nearer acquaintance, when, finding no result from our interview, and their curiosity being satisfied, they quietly stalked away.

“In the Domain, near the Government House, some tame Emeus may be seen walking about, and often, near the Grand House, marching with measured pace, as if keeping guard with the soldiers on duty. One day, during the levee, when the Domain was crowded with people to see the arrivals and listen to the band, the Emeus mingled with the crowd, apparently enjoying the gay scene around them, when some strangers, who were afraid of these birds, ran away. On seeing this, the Emeus, enjoying a chase, pursued, and overtaking one of the gentlemen, took off his hat, to his great surprise. The above circumstance demonstrates their fearless nature, and how readily these noble birds might be domesticated.”

The color of the adult bird is lightish-brown and gray, but when it is young, its plumage is decorated with four broad, black, longitudinal stripes down the back, and four on each side, and four more down the neck and breast. These stripes run in pairs, the two streaks of each pair being divided by a narrow line of white. Towards the head, the stripes are broken into spots and dashes. The feathers are very loose, and hairy in their appearance, and, as is the case with all the Struthiones, will repay a close examination, on account of the great development of the accessory plumes, springing from the shafts of the feathers. The height of a fine male Emeu is from six to seven feet.

Another species belonging to the same genus, the SPOTTED EMEU (*Dromaius irrorátus*), is found in the same country, and can be distinguished by its black head and neck, and the dashes of brownish-black and gray upon its plumage.

AMERICA is not without representatives of this fine group of birds.

The RHEA is a native of South America, and is especially plentiful along the River Plata. It is generally seen in pairs, though it sometimes associates together in flocks of twenty or thirty in number. Like all the members of this group, it is a swift-footed and wary bird, but possesses so little presence of mind that it becomes confused when threatened with danger, runs aimlessly first in one direction, and then in another, thus giving time for the hunter to come up and shoot it, or bring it to the ground with his “bolas”—a terrible weapon, consisting of a cord with a heavy ball at each end, which is flung at the bird, and winds its coils round its neck and legs, so as to entangle it, and bring it to the ground.

The food of the Rhea consists mainly of grasses, roots, and other vegetable substances, but it will occasionally eat animal food, being known to come down to the mud banks of the river for the purpose of eating the little fish that have been stranded in the shallows.

Our knowledge of the Rhea and its habits is almost wholly derived from Mr. Darwin's writings, and, as an original narrative is mostly superior to a second-hand description, part of his account will be given in his own words. The reader must remember that the Rhea is popularly called the Ostrich in South America.

“This bird is well known to abound on the plains of La Plata. To the north it is found, according to Azara, in Paraguay, where, however, it is not common; to the south, its limit

appears to have been from 42° to 43° . It has not crossed the Cordilleras, but I have seen it within the first range of mountains in the Uspallata plain, elevated between six and seven thousand feet. They generally prefer running against the wind, yet, at the instant, they expand their wings, and, like a vessel, make all sail. On one fine hot day I saw several Ostriches enter a bed of tall rocks, where they squatted concealed till nearly approached.

“It is not generally known that Ostriches readily take to the water. Mr. King informs me that at Patagonia, in the Bay of St. Blas, and at Port Valdez, he saw these birds swimming several times from island to island. They ran into the water both when driven down to a point, and likewise of their own accord, when not frightened. The distance crossed was



RHEA.—*Rhea americana*.

about two hundred yards. When swimming, very little of their bodies appears above water and their necks are stretched a little forward; their progress is slow. On two occasions I saw some Ostriches swimming across the Santa Cruz River, where it was about four hundred yards wide, and the stream rapid.

“The inhabitants who live in the country readily distinguish, even at a distance, the male bird from the female. The former is larger and darker colored, and has a larger head. The Ostrich, I believe the cock, emits a singular deep-toned hissing note. When first I heard it, while standing in the midst of some sand hillocks, I thought it was made by some wild beast, for it is such a sound that one cannot tell from whence it comes, or from how far distant.

“When we were at Bahia Blanca, in the months of September and October, the eggs were

found in extraordinary numbers all over the country. They either lie scattered singly, in which case they are never hatched, and are called by the Spaniards 'huachos,' or they are collected together into a hollow excavation, which forms the nest. Out of the four nests which I saw, three contained twenty-two eggs each, and the fourth twenty-seven. In one day's hunting on horseback sixty-four eggs were found; forty-four of these were in two nests, and the remaining twenty, scattered huachos. The Gauchos unanimously affirm, and there is no reason to doubt their statement, that the male bird alone hatches the eggs, and that he, for some time afterwards, accompanies the young. The cock, while in the nest, lies very close; I have myself almost ridden over one. It is asserted that at such times they are occasionally fierce, and even dangerous, and that they have been known to attack a man on horseback, trying to kick and leap on him. My informant pointed out to me an old man whom he had seen much terrified by one of these birds chasing him."

In captivity it is rather an amusing bird, and easily domesticated. Sometimes it seems to be taken with a fit, and runs up and down its inclosure as if it were being chased, holding its wings from the body and appearing in the most desperate state of alarm. This is only a sham after all, a mere outburst of frolic, for the bird immediately subsides into quietude, and resumes its leisurely walk as if nothing had happened. If startled or vexed, it utters a kind of grunt as a warning, and if the offence be repeated, hisses sharply, draws back its head, and seems poising itself for a stroke. The grunt is a hollow sound, something like the noise produced by striking a tin can with a wooden mallet, and every time that it is produced the throat swells and sinks convulsively. The young are pretty little birds, pert, brisk, and lively, and are colored rather prettily, their general hue being gray, striped with black, each stripe having a cream-colored line along its centre.

The Rhea is darkish-gray, taking a blackish hue above, and being rather lighter below. The plumage of the wings is white, and a black band runs round the neck, and passes into a semilunar patch on the breast. The neck is completely feathered. The average height of the Rhea is about five feet.

Three species of Rhea are, however, all inhabitants of South America, namely, the common Rhea just described, DARWIN'S RHEA (*Rhea darwini*), and the LARGE-BILLED RHEA (*Rhea macrorhyncha*).

THE well-known CASSOWARY, long thought to be the only example of the genus, is found in the Malaccas.

This fine bird is notable for the glossy-black hair-like plumage, the helmet-like protuberance upon the head, and the light azure, purple and scarlet of the upper part of the neck. The "helmet" is a truly remarkable apparatus, being composed of a honey-combed cellular bony substance, made on a principle that much resembles the structure of the elephant's skull, mentioned in the previous volume of this work treating of the Mammalia. It yields readily to a sharp knife or a fine saw, and may be cut through by a steady hand without leaving ragged edges. This helmet is barely perceptible in the young bird when newly hatched, and increases in proportion with its growth, not reaching its full development until the bird has attained adult age. A similar phenomenon may be observed in the common Guinea fowl. The beak is high in proportion to its width, and is therefore unlike the flattened and comparatively weak bills of the Ostrich.

The plumage of the body is very hair-like, being composed of long and almost naked shafts, two springing from the same tube, and one always being longer than the other. At the roots of the shafts there is a small tuft of delicate down, sufficiently thick to supply a warm and soft inner garment, but yet so small as to be hidden by the long hair-like plumage. Even the tail is furnished with the same curious covering, and the wings are clothed after a similar manner, with the exception of five black, stiff, strong, pointed quills, very like the large quills of the porcupine, and being of different lengths, the largest not exceeding one foot, and generally being much battered about the point. When stripped of its feathers, the whole wing only extends some three inches in length, and is evidently a mere indication of the limb.

The eye of the Cassowary is fierce and resolute, and its expression is carried out by the

character of the bird, which is tetchy of disposition, and apt to take offence without apparent provocation. Like the bull, it is excited to unreasoning ire at the sight of a scarlet cloth, and, like the dog or the cat, has a great antipathy towards ragged or unclean persons, attacking such individuals with some acerbity merely because their garments or general aspect do not please its refined taste. It is a determined and rather formidable antagonist, turning rapidly about and launching a shower of kicks which can do no small damage, their effect being considerably heightened by the sharp claws with which the toes are armed. In the countries which it inhabits, the native warriors are accustomed to use the innermost claw of the Cassowary's foot as the head of their spears.

The food of this bird in a wild state consists of herbage and various fruits, and in captivity it is fed on bran, apples, carrots, and similar substances, and is said to drink nearly half a gallon of water per diem. The eggs are somewhat like those of the rhea, save that their surface is more tubercular, and the shades of green more varied. The color of the plumage is black, glossy above, as if made of shining black horsehair, and rather duller below. At the lower part of the neck there are two wattles, and the upper part of the neck is colored with beautiful blue, purple, and scarlet. The legs are feathered. An adult male is about five feet in height.

THE other species of Cassowary was discovered by Captain Devlin, and, having been taken to Sydney, was there purchased and then brought to Europe by Dr. Bennett, after whom it has been very appropriately named. Its native title is MOORUK, and its home is in the island of New Britain.

Dr. Bennett's description of the Mooruk is as follows: "The height of the bird is three feet to the top of the back, and five feet when standing erect. Its color is rufous, mixed with black on the back and hinder portions of the body, and raven-black about the neck and breast; the loose, wavy skin of the neck is beautifully colored with iridescent tints of bluish-purple, pink, and an occasional shade of green, quite different from the red and purple caruncles of the Cassowary; the feet and legs, which are very large and strong, are of a pale ash color, and exhibit a remarkable peculiarity in the extreme length of the claw of the inner toe of each foot, it being nearly three times the length which it attains in the claws of the other toes. This bird also differs from the Cassowary in having a horny plate instead of a helmet-like protuberance on the top of the head, which callous plate resembles mother-of-pearl darkened with black lead."

The voice of the Mooruk is a kind of whistling chirp. It is a very cleanly bird, keeping its plumage free from stain, and being very fond of washing, lying down to have repeated bucketfuls of water poured over its body, and squatting on the ground in heavy rain. Their proceedings when in captivity are most amusingly told by Dr. Bennett, in his valuable "*Gatherings of a Naturalist in Australasia*," and although too long to be entirely inserted, are so interesting and so indicative of the Mooruk's character, that a portion must find a place in these pages:—

"I succeeded in purchasing the birds. When placed in the yard, they walked about as tame as turkeys. They approached any one who came in, as if desirous of being fed, and were very docile. They began pecking at a bone they found lying about (probably not having tasted any meat for some time), and would not, while engaged upon it, touch some boiled potatoes which were thrown to them; indeed, it was found afterwards that they fed better out of a dish than from the ground, having no doubt been early accustomed to be fed in that manner. They seemed also fond of scraping about the dunghill, and appeared to pick up food from it, probably insects or grubs. They were as familiar as if born and bred among us for years, and did not require time to reconcile them to their new situation, but were sociable and quite at home at once.

"We found them on the following day rather too tame, or, like spoilt pets, too often in the way. One or both of them would walk into the kitchen, and while one was dodging under the tables and chairs, the other would leap up on the table, keeping the cook in a state

of excitement; or they would be heard in the hall or in the library, in search of food or information; or they would walk upstairs, and then quickly descend again, making their peculiar chirping, whistling noise; not a door could be left open, but in they walked. They kept the servants constantly on the alert: if one went to open the door, on turning round she found a Mooruk behind her; for they seldom went together, generally wandering apart from each other.

"If any attempt was made to turn them out by force, they would dart rapidly about the room, dodging about under the tables, chairs, and sofas, and then end by squatting down under a sofa or in a corner; indeed, it was impossible to remove the bird, except by carrying it away. On attempting this, the long muscular legs would begin kicking and struggling, when it would soon get released, and politely walk out of its own accord. I found the best method was to entice them out as if you had something eatable in your hand, when they would follow the direction in which you wished to lead them. On the housemaid attempting to turn the bird out of one of the rooms, it kicked her and tore her dress. They walk into the stables among the horses, poking their bills into the manger. When writing in my study, a chirping, whistling noise is heard; the door, which is ajar, is pushed open, and in walk the Mooruks, who quietly pace round the room inspecting everything, and then as peaceably go out again.

"Even in the very tame state of these birds, I have seen sufficient of them to know that, if they were loose in a wood, it would be impossible to catch them, and almost as difficult to shoot them. One day, when apparently frightened at something that occurred, I saw one of them scour round the yard at a swift pace, and disappear under the archway so rapidly that the eye could hardly follow it, upsetting all the poultry in its progress, as they could not get out of the way. The lower half of the stable door, about four feet high, was kept shut, to prevent them going in; but this proved no obstacle, as it was easily leaped over by these birds.

"They never appeared to take any notice of or be frightened at the jabiru, or gigantic crane, which was in the same yard, although that sedate, stately bird was not pleased at their intrusion. One day I observed the jabiru spreading his long wings, and clattering his beak, opposite one of the Mooruks, as if in ridicule of their wingless condition. The Mooruk, on the other hand, was preening its feathers, and spreading out its funny little apology for wings, as if proud of displaying the stiff, horny shafts with which they were adorned. The Mooruks often throw up all their feathers, ruffling them, and then they suddenly fall flat as before. Their wings aid them in running, but are never used for defence. Captain Devlin says, that the natives consider them to a certain degree sacred, and rear them as pets. He does not know whether they are used as food, but if so, not generally; indeed, their shy disposition, and power of rapid running, darting through brake and bush, would almost preclude their capture.

"The natives carry them in their arms, and entertain a great affection for them, which will account for their domesticated state with us. The noise of these birds, when in the yard, resembled that of the female turkey; at other times, the peculiar chirping noise was accompanied by a whistling sound, which often reminded me of the chirp of the Guinea fowl. The contrast of these birds with the jabiru, or gigantic crane (*Mycteria australis*), was very great. The Mooruks were sometimes seen moving about like the female turkey, but were more often in a state of rapid motion or excitement; when walking quietly, they were very inquisitive, poking their beaks into everything, and familiar with every person. The jabiru, on the other hand, was a perfect picture of sedate quietness, looking upon all play as injurious to his constitution or derogatory to his dignity, remaining stiff in his gait and serious in his demeanor. The Mooruks, by their activity and noise, would let every one know they were in the yard, whereas no one would be aware of the presence of the jabiru except by sight; and when he moves away, it is with a quiet sedate gait.

"The Mooruk has, when seen in full face, a fine eagle-like expression of countenance, having the same vivid, piercing eye and curved beak. The instant the Mooruk saw an egg laid by a hen, he darted upon it, and breaking the shell, devoured it immediately, as if he had been accustomed to eggs all his life. A servant was opening a cask of ale; as soon as the birds heard the hammering, they both ran down to it, and remained there while it was

unpacked, squatting down on each side, most intently watching the process, and occasionally pecking at the straw and contents.

“When the carpenter was in the yard, making some alteration in the cage of these birds, it was very amusing to see them squat down upon their tarsi, like dogs, watching the man, with the greatest apparent interest in all his actions, enjoying the hammering noise, and occasionally picking up a nail, which was not in this instance swallowed, but again dropped; one of them swallowed his ‘oilstone,’ which so alarmed the man that he considered the bird had committed suicide, and hurried to inform me of the circumstance, when, to his surprise, I told him if he did not take care they would swallow his hammer, nails, and chisel. The birds kept close to the man until he left for dinner, when they went about the yard as usual, resuming their position near him as soon as he returned to his work, and not leaving until he had finished.

“These birds invariably retire to roost at dusk, and nothing more is seen or heard of them until daylight, as they never leave their usual roosting-place after retiring; indeed, their usual time of roosting is as soon as the sun is on the verge of setting, even before the poultry depart; and on looking at them about this time in their retirement, they utter their usual greeting chirps, and one may be observed reposing upon the breast, the other upon the tarsi. The door may be safely left open during the night, as they will not move, nor leave their sleeping-place, until the dawn of day. If, during any hour of the night, I approached their resting-place, they immediately greeted me with their peculiar chirping noise, being evidently, like geese, very watchful, or, according to the common saying, ‘sleeping with one eye open;’ when gazed at, they not only chirped, but, if I continued too long, I was saluted by a loud growl.

“One morning the male Mooruk was missing, and was found in the bedroom upstairs, drinking water out of the water-jug. There were some silkworms in the room at the time, but they were fortunately covered; otherwise, I have no doubt, he would have made a meal of them. The same bird swallowed a bung-cork which measured one and a half inch in diameter; indeed they both seem to swallow anything from butter and eggs to iron, in the form of small bolts or nails and stones. The bird did not appear well; he was sulky and heavy all day; and when, in this sickly state, any one approached him, instead of being greeted with a cheerful chirping, he uttered a loud sulky growl; we were afraid he was dying. On the following day he was as lively as ever, having passed the cork in a perfectly undigested state.

“To show how dangerous it was to leave any object capable of being swallowed, I will relate the following occurrence: The servant was starching some muslin cuffs, and having completed one and hung it up to dry, she was about to finish the other, when, hearing the bell ring, she squeezed up the cuff, threw it into the starch, and attended to the summons. On her return the cuff was gone, and she could not imagine who had taken it during her brief absence, when she discovered that the Mooruk was the thief, its beak and head being covered with starch; he had without doubt swallowed it. This occurred at eleven A. M., and at half-past five P. M. the cuff was passed, quite undigested and uninjured, and with a little washing was as good as ever.

“They could not digest unboiled potato. Maize, or any unboiled grain, was likewise indigestible. When a piece of bread was offered them at a height beyond their reach, they would first stretch up the body and neck as much as possible, and then, finding they could not get it, they would jump up for it like a dog. They were frequently seen running and tumbling about the yard together in high spirits. It is well to warn persons, inclined to keep these birds as pets, of their insatiable propensities. When about the house, they displayed extraordinary delight in a variety of diet; for, as I have previously related, one day they satisfied their appetites with bones, whetstones, corks, nails, and raw potatoes, most of which passed perfectly undigested; one dived into thick starch and devoured a muslin cuff, whilst the other evinced a great partiality for nails and pebbles; then they stole the jabiru’s meat from the water. If eggs and butter were left upon the kitchen-table, they were soon devoured by these marauders; and when the servants were at their dinner in the kitchen, they had to be very watchful, for the long necks of the birds appeared between their arms, devouring everything

off the plates; or, if the dinner-table was left for a moment, they would mount upon it and clear all before them.

“At other times they stood at the table, waiting for food to be given to them, although they did not hesitate to remove anything within their reach. I have often seen them stand at the window of our dining-room, with keen eye, watching for any morsel of food that might be thrown to them. The day previous to the departure of the pair for their new home, the male bird walked into the dining-room, and remained by my side during the dessert. I regaled him with pineapple and other fruits, and he behaved very decorously and with great forbearance. Having had these birds for a considerable time in my possession, I had ample opportunity of hearing all the notes uttered by them. I never heard them utter a sound like ‘Mooruk.’ I am inclined to consider the name signifies, in the native language, ‘swift’—resembling closely the Malay term ‘a muck,’ or mad career.”

In the same work is much more curious and valuable information respecting this bird, and to its pages the reader is referred for further information concerning this and many other objects of natural history.

The Mooruk is not devoid of offensive weapons, for it can kick very sharply, delivering the stroke forward like the ostrich, and deriving much aid from the long-pointed claw which has already been mentioned. Its attitudes are much more various, and its form more flexible, than would be supposed by persons who have not seen the bird in a living state. Sometimes it squats down with the legs bent under it, and so sits upright like a dog that has been taught to “beg;” sometimes it lies on its side, stretching the legs straight behind it; sometimes it flattens itself against the ground, its legs tucked under its body, and its head and neck stretched at full length on the ground. This latter position is a favorite one. Like the emeu, it is often taken with an ebullition of joyousness, and then dashes about its inclosure as if half mad, jumps against a tree or post, trying to kick it at a great height from the ground, and tumbling flat on its back when it misses its aim. Then it will suddenly cease its vagaries, and walk about very composedly, but panting for breath with open bill.

This bird may be distinguished from the cassowary by the four (instead of five) spines of the wings, and the shape of the helmet.

PERHAPS the very strangest and most weird-like of all living birds is the APTERYX, or Kiwi-Kiwi.

This singular bird is a native of New Zealand, where it was once very common, but, like the dinornis, is in a fair way of becoming extinct, a fate from which it has probably been hitherto preserved by its nocturnal and retiring habits.

Not many years ago the Apteryx was thought to be a fabulous bird, its veritable existence being denied by scientific men as energetically as that of the giraffe in yet older days, or the duck-bill in more modern times. A skin brought from New Zealand was given to a taxidermist to “set up,” and the man, taking it for one of the penguins on account of its very short wings and the total absence of a tail, stuffed it in a sitting posture, such as is assumed by the penguin tribe, and arranged the head and neck after the same model.

In this bird there is scarcely the slightest trace of wings, a peculiarity which has gained for it the title of Apteryx, or wingless. The plumage is composed of rather curiously shaped flat feathers, each being wide and furnished with a soft, shining, silken down for the basal third of its length, and then narrowing rapidly towards the extremity, which is a single shaft with hair-like webs at each side. The quill portion of the feathers is remarkably small and short, being even overlapped by the down when the feather is removed from the bird.

The skin is very tough and yet flexible, and the chiefs set great value upon it for the manufacture of their state mantles, permitting no inferior person to wear them, and being extremely unwilling to part with them even for a valuable consideration. The bird lives mostly among the fern; and as it always remains concealed during the day in deep recesses of rocks, ground, or tree-roots, and is remarkably fleet of foot, diving among the heavy fern-leaves with singular adroitness, it is not very easy of capture. It feeds upon insects of various kinds,

more especially on worms, which it is said to attract to the surface by jumping and striking on the ground with its powerful feet. The natives always hunt the Kiwi-kiwi at night, taking



APTERYX, OR KIWI-KIWI.—*Apteryx australis*.

with them torches and spears. The speed of this bird is very considerable, and when running it sets its head rather back, raises its neck, and plies its legs with a vigor little inferior to that of the ostrich.

The late CHARLES DARWIN writes:—"The illustrations are the best I ever saw in any work. I find it superfluous to enter here into particulars, as I already, in the 'Descent of Man,' have widely and openly confessed how much I have profited by Mr. Brehm's book, and how highly I esteem it."
 Sir JOHN LEECH writes:—"You have I think, done good service in publishing them. They are certainly very admirable."
 W. B. CARPENTER, M.D., LL.D., writes:—"I can quite endorse the favorable opinions already given by distinguished zoologists as to the high character of the illustrations generally."

Animate Creation.

WE have concluded to submit for public patronage a work with the above title, being a series of exquisite Engravings representing the ANIMAL WORLD, executed with great scientific accuracy, and accompanied by full Descriptive Text, written in popular terms, so as to delight and instruct the people. Anyone who has considered the subject must be at a loss to understand why an ILLUSTRATED NATURAL HISTORY, comprehensive and at the same time popular, has not before this been published in this country. Indeed any lover of animals who has visited the great museums and zoological gardens and has had access to books of engravings in the public libraries, could not fail to remark the wealth of material in existence devoted to this subject. Being confirmed in our conviction of the desirability of such a work, we laid under contribution the best existing authorities for the production of most perfect representations of all the more important living creatures, and among the artists whose delineations will delight the reader, we may mention Harrison Weir, Wolf, Coleman, Fr. Specht, and Mutzel. By far the majority of the engravings in these volumes are from drawings made from the *living* animals, many at the Zoological Society's Gardens in London, England.

We purpose that our patrons shall be aided and interested in their study by such an array of pictures as has never before embellished any Natural History. In numerous instances the engraving is printed in oil-colors, and this portion of the illustrations has been taken charge of by Messrs. L. Prang & Co., of Boston, who we believe rank foremost for high artistic results in this department of printing. These Oleographs were copied under the superintendence of Mr. Prang from the renowned "Tafeln" of "Brehm's Thierleben," so that they may be declared perfectly reliable.

We sought competent advice from various sources as to the most suitable text that should accompany this panorama of handsome Engravings. It was found impossible to embody all the present ideas of naturalists in a single work like this on account of the rapid advances and constant changes in their knowledge of, and habits of thought respecting, the Animal World. And it seemed to us correct that the true object of Zoology is not to arrange, to number, and to ticket animals in a formal inventory, but to inquire into their life-nature, and not simply to investigate the lifeless organism.

What do we know of "Man" from the dissecting-room? Is it not Man, the warrior, the statesman, the poet, etc., that we are interested in? With all veneration which attaches itself to those who are the accredited possessors of abstruse learning, their inordinate use of phraseology detracts too much, we fear, from the fascination that the study of the Animal World would otherwise yield, and as we are not content to have our work restricted to a favored few, we thought the task placed in our hands to be to keep the work free from a repellant vocabulary of conventional technicalities. Our endeavor has been to find an author whose work would be noted for its fund of anecdote and vitality rather than for merely anatomical and scientific presentation, and we arrived at the conclusion that we could not do better than avail ourselves of the Rev. J. G. Wood's comprehensive work—a work most popularly approved by speakers of the English language. It would be superfluous to say one word concerning the standard character of his book, from the pages of which old and young at the other side of the Atlantic have obtained so much instruction and rational amusement. Avoiding the lengthened dissertations and minute classifications of specialists, he presents to his readers in popular terms a complete treatise on the Animal Kingdom of all climes and countries. The one objection that could be urged against it was, that animal life in America might be treated more fully and American forms given more consideration. In order to obviate this drawback and to do full justice to the creatures of our own country, we secured the aid of Dr. J. B. HOLDER, of the American Museum of Natural History in New York, an undoubted American authority, who has adapted Wood's work to American wants and given prominence to American forms of Animal life.

The splendid work on Rodentia, by Allen, Coues, and others, will be fully consulted. The valuable work on North American Birds, by Baird, Brewer, and Ridgway, will be the guide in the treatment of birds. The late arrangement of the classification and nomenclature of North American Birds, by Mr. Ridgway, and the Committee on that subject of the Ornithologists' Union, will be utilized in full. The arrangement of Mammals will be after the latest classification by Professor Flower, of the Zoological Society of London. So that this will be the first popular Natural History worthy of the name that has made its appearance here, which gives due and full recognition to the animate world surrounding us.

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The fine specimen kept in captivity proved a very valuable bird, as she has laid several eggs, thereby setting at rest some disputed questions on the subject, and well illustrating the natural habits of the species. During the day she remains hidden behind the straw, which is piled up in a corner of her box, and declines to come forth unless removed by force. When brought to the light, she looks sadly puzzled for a short time, and when placed on the ground she turns her back—not her tail, as she has no such appendage—and runs off to her box in the most absurd style, looking as if she were going to topple over every moment. I noticed that she always goes round her box and slips in between the box and the wall, insinuating herself behind the straw without even showing a feather. Before hiding herself, she lingered a few moments to eat some worms from her keeper's hand, taking them daintily with the end of the bill, and disposing of them at a rapid rate.

Upon her box is placed, under a glass shade, the shell of one of her eggs. These eggs are indeed wonderful, for the bird weighs just a little more than four pounds, and each egg weighs between fourteen and fifteen ounces, its length being four inches and three-quarters, and its width rather more than two inches, thus being very nearly one-fourth of the weight of the parent bird. There have been six eggs laid between the time when it was captured and nine years later, when I last saw the bird, and each egg has varied between thirteen and fourteen and a half ounces in weight.

The long curved beak of the Apteryx has the nostrils very narrow, very small, and set on at each side of the tip, so that the bird is enabled to pry out the worms and other nocturnal creatures on which it feeds, without trusting only to the eyes. The general color of the Apteryx is chestnut-brown, each feather being tipped with a darker hue, and the under parts are lighter than the upper. The height is about two feet.

Three species of Apteryx are known—namely, the one already described, OWEN'S APTERYX (*Apteryx owenii*), remarkable for the puffy downiness of its plumage, and MANTELL'S APTERYX (*Apteryx mantellii*), and it is very probable that there are still other species at present unknown.





GREAT BUSTARD.—*Otis tarda*.

THE GRALLÆ.

BUSTARDS, PLOVERS, CRANES, HERONS, ETC.



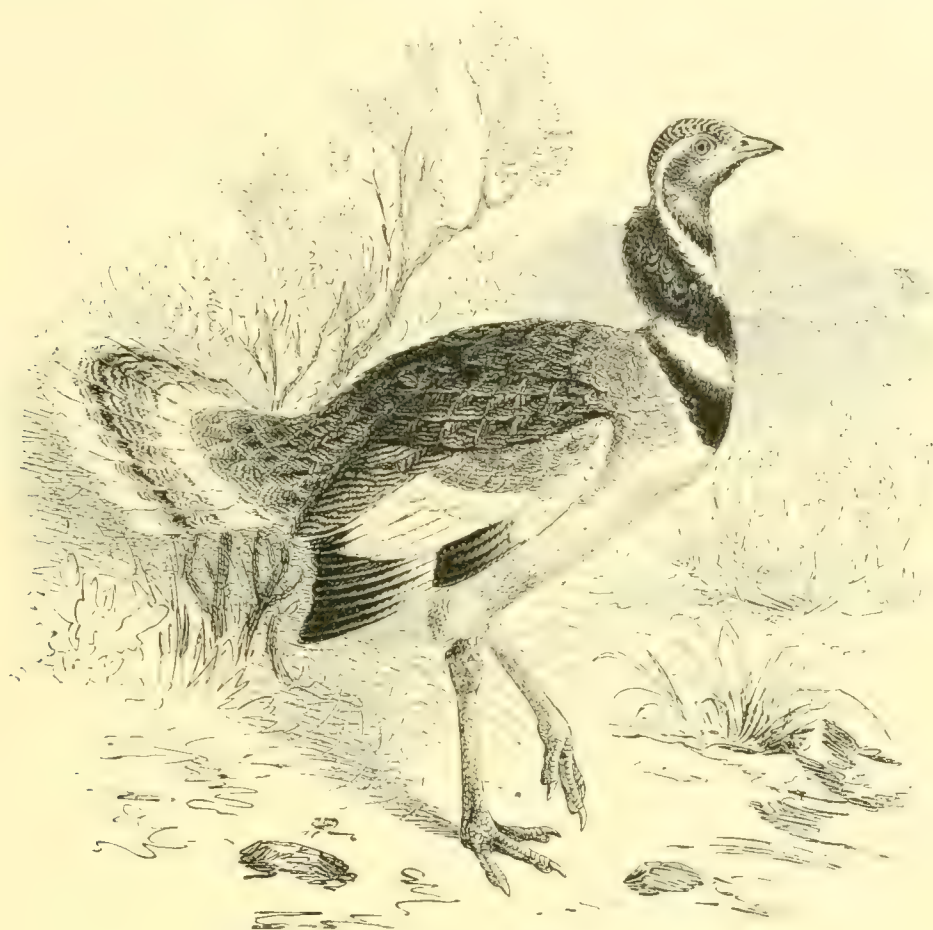
ALTHOUGH the progress of civilization has conferred many benefits on Europe, it has deprived it of many of its aboriginal inhabitants, whether furred or feathered, the GREAT BUSTARD being in the latter category.

This splendid bird, although in former days quite a usual tenant of plains and commons, and having been an ordinary object of chase on Newmarket Heath, is now so very rare, that only an occasional specimen makes its appearance at very rare intervals, and is then generally found—and shot—on Salisbury Plain. In the countries which it still inhabits, it is a most wary bird, and very difficult of approach, being generally shot with rifles after a careful and lengthened chase that rivals deer-stalking in the watchfulness and perseverance that are requisite before the sportsmen can get within shot. They are carried in carts, covered with ordinary farm produce, and having an aperture through which they can aim; they put on various disguises; they enact the part of agricul-

tural laborers, plying their work, and gradually slipping towards the wary birds; they walk behind cows, and, in fine, put into practice every device which their ingenuity, sharpened by experience, can suggest.

The Great Bustard is not fond of flying, its wings having but a slow and deliberate movement; but on foot it is very swift, and tests the speed of dog and horse before it can be captured.

The nest—if a hole in the ground may be called a nest—of this bird is generally made among corn, rye, etc., although it is sometimes situated in rather unexpected localities. The eggs are two or three in number, and of an olive-brown color, splashed with light brown, in which a green tinge is perceptible. The food of the bird is almost wholly of a vegetable nature,



LITTLE BUSTARD.—*Ols tetraz*.

though it is said to feed occasionally upon mice, lizards, and other small vertebrates. The flesh of the Bustard is very excellent, but the extreme rarity of these birds prevents it from being often seen upon the tables. When caught young, the Bustard can be readily tamed, and soon becomes quite familiar with those who treat it kindly.

The head and upper part of the neck are grayish-white, and upon the side of the neck there is a small patch of slaty-blue bare skin, almost concealed by the curious feather tuft which hangs over it. The upper part of the body is pale chestnut, barred with black, and the tail is of similar tints with a white tip, and a very broad black band next to the white extremity. The wing-coverts, together with the tertials, are white, and the primaries black. The under surface of the body is white. The total length of an adult male is about forty-five inches.

THE LITTLE BUSTARD is an occasional visitor to the northern parts of Europe, and whenever it does make its appearance, it almost invariably chooses the winter time.

It is by no means uncommon in several parts of Europe, and in Russia assembles in little flocks. Towards the shores of the Caspian Sea it is found in greater numbers, the flocks being of considerable size, and all appearing (in the month of December) to consist of birds which have not put on, or which have already put off, their nuptial plumage. This bird feeds upon insects, herbs, grasses, and seeds, and its flesh is very good, having been compared to that of a young pheasant. The eggs are placed on the ground among a tuft of rank herbage in which the bird can lie concealed; their number is about four, and their color olive-brown.

The male, when in full plumage, is a decidedly handsome bird. The top of the head is fawn and black, and the sides of the face and neck are slaty-gray. Around the neck runs a broad gorget of black, cut by two white bands, one narrow and forming a ring round the neck, and the other broader and of semilunar shape, just across the top of the breast. The upper parts of the body are fawn, mottled profusely with black, and the wings are beautifully marked with black and white. The under surface of the body is white. The female is without the beautiful black and white stripes on the neck and chest, and her breast, sides, and flanks are barred with black. Except during the breeding season, the male has the same plumage. The total length of this bird is about seventeen inches.

THERE are many other Bustards scattered over the world, some being well known in India under the title of Florikans, and others being distributed over Africa. The HOUBARA, or RUFFLED BUSTARD, is well known on account of its curious-plumed ruffles and the sport which it affords to Algerian falconers. There are also two South African species, the Pauw and the Coran, which are often casually mentioned in the works of African travellers. Both these birds belong to the genus *Eupodotis*, and of them Captain Drayson has kindly given me the following account:—

“THE PAUW bird is more sought for by the pot-hunter than any other in South Africa. Its size is about that of a turkey, and its flesh delicious. On the breast of this bird there are two colored meats. First, there is a dark brown, similar to that of the grouse; but beneath this there is white meat, which is similar in appearance to chicken’s flesh.

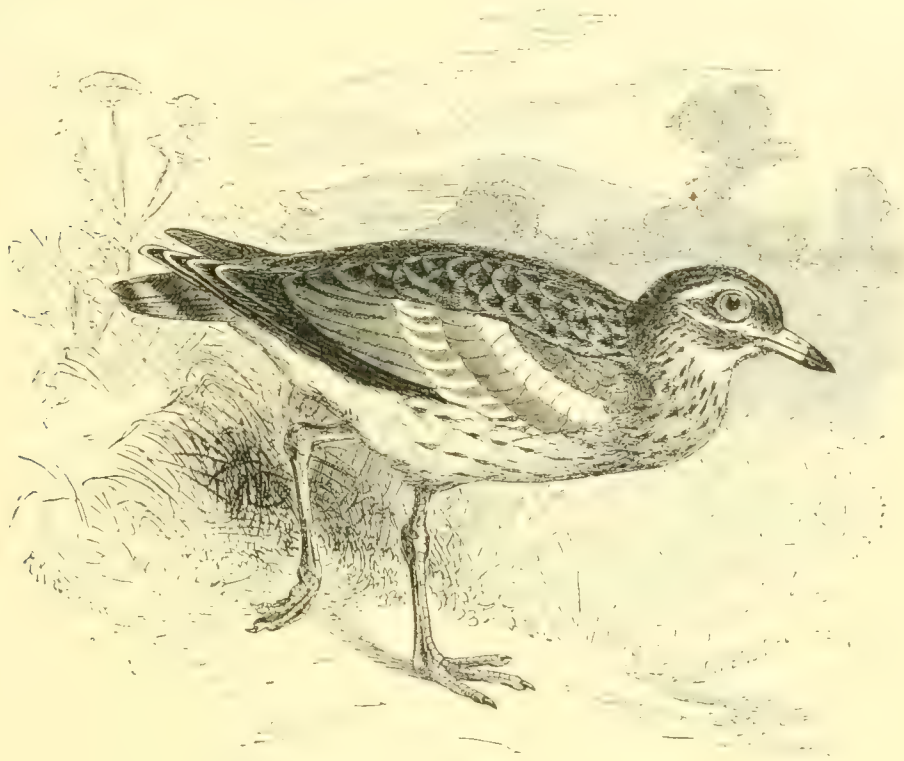
“The Pauw is usually found on the plains, which it prefers to bushy country; for as it is a very crafty bird, it does not like to give the sportsman an opportunity to stalk it. When the long grass of the plains has been burnt, and the young grass began to shoot up, then would numbers of Pauws assemble on the ground, and search for the worms and slugs which became visible. There was little chance, however, of approaching within two hundred yards of the bird at these times, as the whole flock would take flight immediately they believed themselves in danger, and they had formed a very fair estimate of the distance at which a smooth-bore would be dangerous. The flight of the Pauw was something like the heron’s, except that when it purposed settling, it would skim for a considerable distance with its wings quite rigid.

“The bird being rather heavy, with the appearance of a full habit of body, it could not take flight very readily. When it was possessed of a good feeding locality it seemed disinclined to fly away, although its sense of danger was apparent. The sportsman might then probably reach to within one hundred yards of the bird, particularly if there happened to be only one near him, and if he did not look attentively in the direction of the Pauw. It was still necessary, however, to ride round the circumference of a circle of which the Pauw was the centre, and, by decreasing the radius, to approach nearer and nearer. If the Pauw crouched, then it usually depended upon the accuracy of the shooting whether or not the bird was killed; for the sportsman might then gradually narrow the radius of his circle, until he was within seventy or eighty yards, when he might dismount, if on horseback, and run in towards the bird, discharging the dose of buck-shot just as the Pauw opened wide his wings. These birds are not confined to any particular locality, but seem to range over any country within a radius of a hundred miles or so.

“THE CORAN is much smaller than the pauw, is longer, in proportion, in the leg, and is rarely seen in flocks. It is quite as much esteemed for the table as the larger bustard, and

possesses also the two colored meats. The Coran may be expected where the grass is long, near rivers or ponds, and where there are some portions of marshy ground ; but it avoids showing itself much in the open. The poet has very appropriately designated this bird as the 'listless Coran,' for its flight is slow and short, and, if possible, will be avoided altogether.

"In consequence of these characteristics this bird, if once seen, is almost certain to be 'bagged.' It will allow the sportsman to almost ride over it before it will rise ; then a slow, lazy, owl-like flight of about two hundred yards will satisfy its organ of caution. Upon being pursued, it will again lie close, and has to be almost kicked before it will leave the ground ; after which its slow flight affords even an indifferent shot an excellent chance of killing, for the Coran can carry off very little shot."



GREAT PLOVER OR THICK-KNEE.—*Edicnemus crepitans*.

THE Wading Birds are well furnished with legs and feet formed for walking, and in many species the legs are greatly elongated, so as to enable them to walk in the water while they pick their food out of the waves.

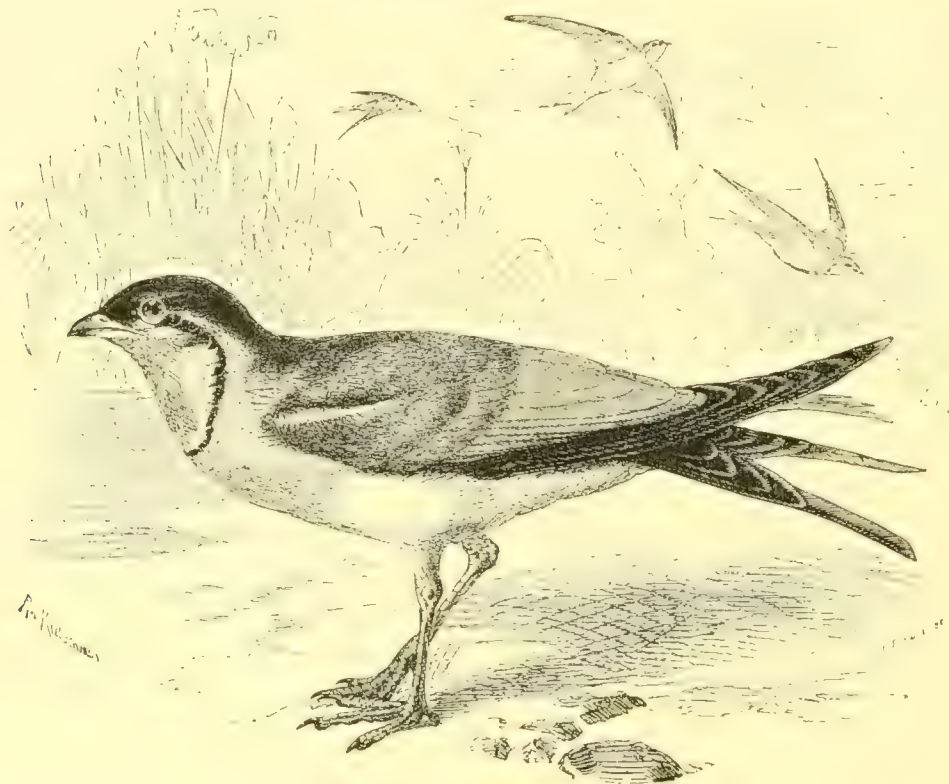
The Plovers head the list of Waders, of which our first example is the GREAT PLOVER, or THICK-KNEE.

It is found in various parts of Europe, where it is known under the names of STONE CURLEW and NORFOLK PLOVER. As it comes from the south, it is more common in the southern than in the northern countries. It moves about chiefly in the dark, its large full eyes enabling it to take advantage of the waning light, and to pounce upon the slugs, worms, and insects that come forth by night. The bird is also thought to kill and devour lizards, frogs, and mice ; and the remains of the large hard-shelled beetles have been found within its stomach.

The note of this Plover is almost human in its intonation, sounding like that strange whistle produced by putting the fingers in the mouth and blowing shrilly through them. The Thick-knee frequents open country and plains, disliking inclosures, and being very fond of downs where sheep are fed in large flocks. It is a cautious and very shy bird, so that the sportsman cannot, without great trouble, come within shot range. Moreover, it is singularly tenacious of life, and will carry away a large charge of shot without seeming much the worse at the time.

The eggs of this bird are laid upon the bare ground, and are two in number. Their color is rather light dingy-brown, covered with splashes and streaks of slaty-blue and dark brown. The male bird is supposed to aid in the duties of incubation. When hatched, the young birds are covered with a soft spotty down, so like the stones and soil in which they repose, that they can hardly be discovered even within a yard or two. For the same reason, the eggs are very safe from unpractised eyes. About October, the birds take their departure, assembling together in flocks before they start on their travels.

The general color of the Thick-knee is mottled brown and black. The head is brown streaked with black; there is a light-colored stripe from the forehead to the ear-coverts, and the chin and throat are white. The back is brown streaked with black, and the quill-feathers of the wing are nearly black, with a few patches of white. The neck and breast are extremely pale brown, streaked with a darker hue, and the abdomen is nearly white, with a few long and very narrow longitudinal streaks. In total length the bird measures about seventeen inches.



PRATINCOLE.—*Glareola pratincola*.

THE close compact plumage of the PRATINCOLE, its long pointed wings, its deeply forked tail, and swallow-like form, point it out as a bird of swift wing and enduring flight.

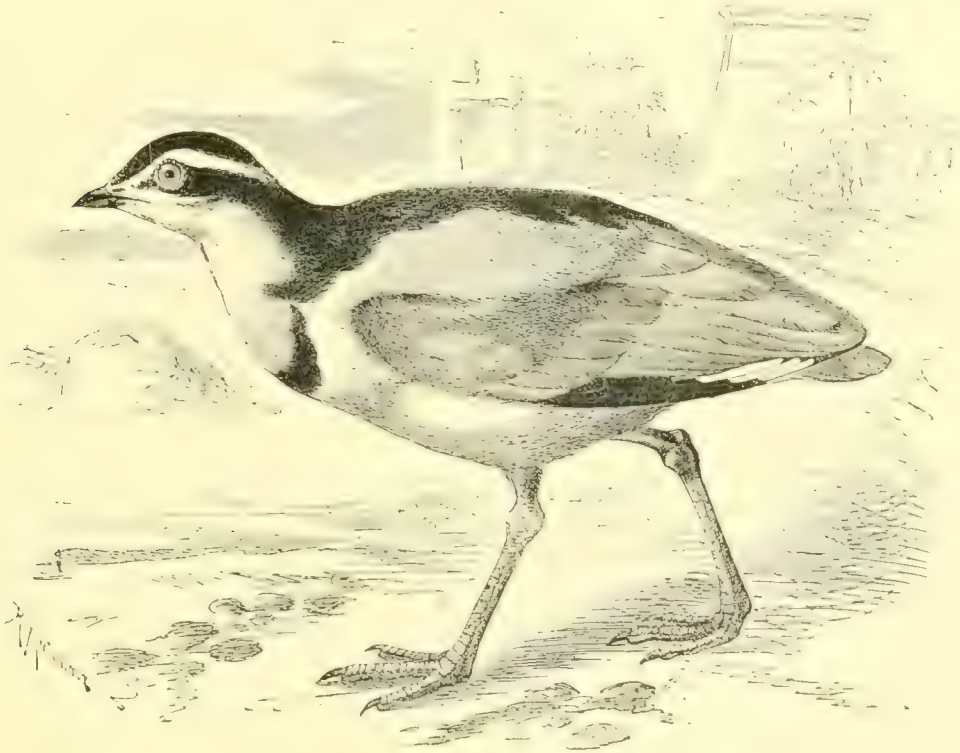
The Pratincole is a usual resident of the east of Europe and Central Asia. Like the swallows, to which it is so similar in form and habits that even modern zoologists have doubted whether it ought not to find a place among those birds rather than with the Waders, the Pratincole feeds much upon the wing, snapping up the insects as they come across its path, and especially delighting in picking the aquatic insects out of their native element without even staying its aerial course. Its endurance is equal to its speed, and a flight of two or three hundred miles is but an easy journey to this bird, which can thus pass over a very great extent of country in a few days.

The nest of the Pratincole is made among thick aquatic herbage, and the eggs are generally about five or six in number. The general color of the Pratincole is shining yellowish-brown above. The chin is whitish, and the front of the throat reddish-white. A narrow black streak runs from the eyes over the ear-coverts, and round the throat, forming the "collar," by

which the bird is so readily known. The breast is light brown, and the abdomen as well as the upper tail-coverts, is white. The quill-feathers of the wings are dark blackish-brown, and the deeply forked tail is white at its basal half, and dark blackish-brown to the tip.

THE very rare bird which, on account of its speed of foot and the color of its plumage, is termed the CREAM-COLORED COURSER, is found even less frequently than the preceding species.

It seems to live chiefly in Barbary or Abyssinia, though specimens have been obtained from almost every country in Europe. One of these birds, shot in Kent, was remarkable for its



CREAM-COLORED COURSER.—*Lyrus ægyptia*.

boldness. When the gun that was aimed at it missed fire, the bird only flew away for a short distance, and then alighted within a hundred yards of the gunner. It ran with great velocity, picking up objects from the ground in its course, and it was with difficulty raised from the ground so as to afford a fair shot. The note of this species is very peculiar, and is uttered on the wing.

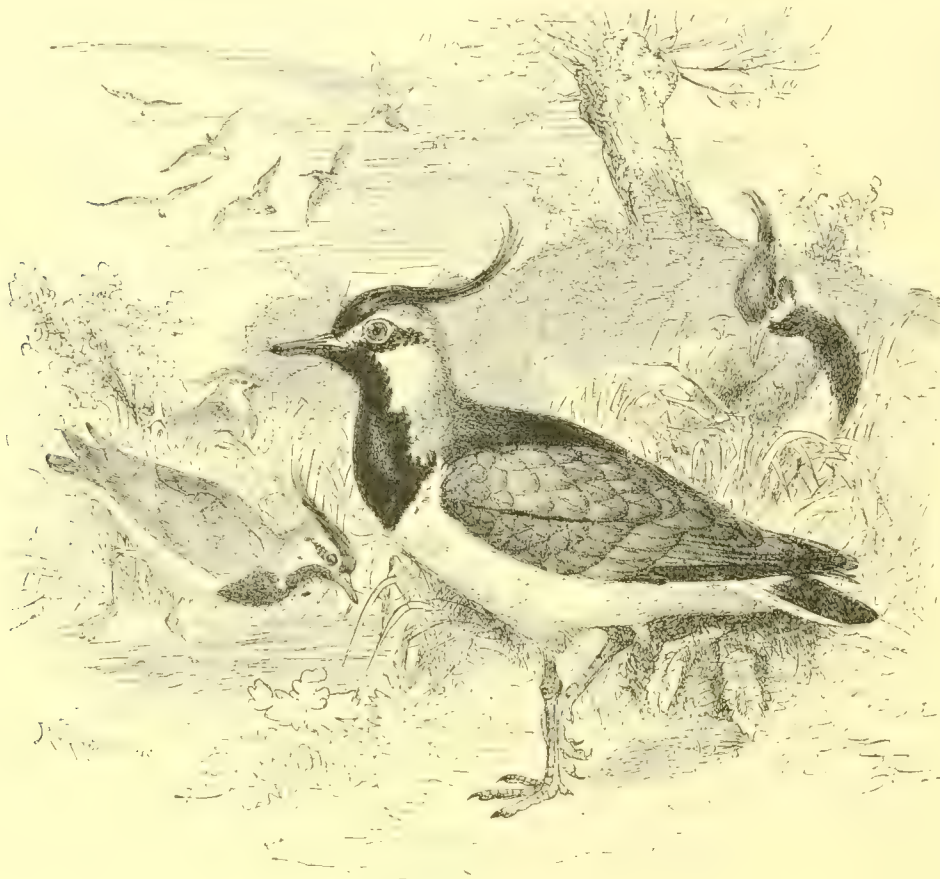
The crown of the head is fawn, fading into gray behind, and the chin is white. From the eye over the ear-coverts is a black curved streak, and immediately above it is a similar white streak. The whole upper parts of the body are pale reddish-brown, the primary feathers of the wing are jetty-black, and there is a curious black spot near the end of each tail-feather. The whole under surface is cream-white, becoming white on the under tail-coverts. Both sexes are similarly colored, and the total length is rather more than ten inches.

THE well-known LAPWING, OR PEEWIT, is celebrated for many reasons. Its wheeling, flapping flight is so peculiar as to attract the notice of every one who has visited the localities in which it resides, and its strange, almost articulate, cry is equally familiar. When it fears danger, it rises from the nest, or rather from the eggs, into the air, and continually wheels around the intruder, its black and white plumage flashing out as it inclines itself in its flight, and its mournful cry almost fatiguing the ear with its piercing frequency. "Wee-whit! wee-e whit!" fills the air, as the birds endeavor to draw away attention from their home; and

the look and cry are so weird-like that the observer ceases to wonder at the superstitious dread in which these birds were formerly held. The French call the Lapwing "Dix-huit," from its cry.

It is the male bird which thus soars above and around the intruder, the female sitting closely on her eggs until disturbed, when she runs away, tumbling and flapping about as if she had broken her wing, in hopes that the foe may give chase and so miss her eggs. It is certainly very tempting, for she imitates the movements of a wounded bird with marvellous fidelity.

The eggs of the Lapwing are laid in a little depression in the earth, in which a few grass stalks are loosely pressed. The full number of eggs is four, very large at one end and very sharply pointed at the other, and the bird always arranges them with their small end inwards,



LAPWING.—*Vanellus cristatus*.

so that they present a somewhat cross-like shape as they lie in the nest. Their color is olive, blotched and spotted irregularly with dark blackish-brown, and they harmonize so well with the ground on which they are laid that they can hardly be discerned from the surrounding earth at a few yards' distance. Under the title of "Plover's eggs" they are in great request for the table, and are sought by persons who make a trade of them, and who attain a wonderful expertness at the business. The eggs are generally laid in marshy grounds, heaths, and commons, where they are sometimes found by dogs trained for the purpose. They are, however, often placed in cultivated grounds, and I have found numbers in ploughed fields in the months of April and May. At first, the novice may pass over the ground three or four times without finding an egg, and may have the mortification of seeing a more experienced egg-hunter go over the very same ground and fill his bag. After a while, however, the eye becomes accustomed to the business, and the speckled eggs stand out boldly enough against the ground. Even the protruding ends of the bents and grass stems on which they are laid take the eye, and there are very few eggs that can escape.

The food of the Lapwing consists almost wholly of grubs, slugs, worms, and insects. It is easily tamed, and is often kept in gardens for the purpose of ridding them of these destructive creatures. In the garden next our own a Lapwing was kept, and lived for some years, tripping featly over the grass and thoroughly at home.

In its coloring the Lapwing is rather a handsome bird. The top of the head is black, as is the long-pointed crest, which can be raised or depressed at will. The sides of the face and neck are white, speckled with black; the chin, throat, and breast are jetty-black, and from the chin a black streak runs under the eye. The upper part of the body is shining coppery-green, glazed with purple, and the primary feathers of the wing are black, with some grayish-white at their tips. The upper tail-coverts are chestnut, and the tail is half white and half black, the exterior feather on each side being almost wholly white. The under parts are white, changing to fawn on the under tail-coverts. In winter the chin and throat are white. The yearling birds are mottled with buff on the back. The total length of the bird rather exceeds one foot.

The Lapwing is now enumerated with North American birds, on the strength of the fact that it is occasionally seen as a straggler here. Several other instances are known of similar character. Usually, in these cases of exceptional migration, there is seldom more than one individual noticed. Occasionally, perhaps, a pair is observed.



DOTTEREL and GOLDEN PLOVER.—*Charadrius morinellus* and *pluvialis*.

THE two Plovers represented in the engraving are common throughout Europe.

THE GOLDEN PLOVER, sometimes called the YELLOW PLOVER from its prettily colored plumage, is very common in many parts of Europe, being found mostly in the more northern districts, moving southward in the autumn. The spots which it selects for its breeding-places are generally situated on open moors, where the vegetation is but scanty, and water is at hand,

although well below the level of the nest, rather high ridges, with a dell slope, being its most favored spots. It makes its simple preparations in the beginning of April or the end of March, according to the season, choosing some little depression in the soil, scratching it tolerably level, and laying in it a few bents and grass stems. The eggs are usually four in number, and their color is yellowish-olive, blotched with dusky brown. Like the eggs of the lapwing, they are arranged with their small ends inwards. The Golden Plover also puts in practice sundry devices to draw an intruder away from the nest, rising into the air when it has succeeded in its object, and uttering an exultant, whistling cry as it wheels off in safety. The female is very careful about her eggs. While sitting, she crouches so low upon them that her speckled plumage can hardly be distinguished from the earth; and when she leaves her nest, she runs to some little distance along the ground before she rises into the air, and returns after the same cautious fashion.

The young birds are active on foot, and are able to follow their parent within a very short time after their escape from the egg-shell. They are pretty little creatures, covered with thick dusky mottled down, and not easily to be discovered.

The plumage of the Golden Plover varies generally according to age and the season of the year. In the summer, the top of the head and whole of the upper surface are grayish-black, mottled with triangular spots of golden-yellow. The face, chin, throat, and under surface of the body are jetty-black, a white streak passing over the eyes and forehead, and separating the mottlings of the head from the black of the face. The primaries are nearly black, and the tail is barred with whitish-gray and blackish-brown. Below the wing there is a band of white, and the under tail-coverts are white. In the winter the chin is white, and the breast also dusky-white, spotted with yellow; and in late autumn and early spring the changing plumage is curiously mottled with black, yellow, and white. The yearling birds are more gray on the breast and lower parts than when they have attained their second year's plumage. In total length this bird measures not quite one foot.

The Golden Plover was for a long time regarded as identical with the American bird of that name. Wilson says: "This beautiful bird visits the sea-coasts of New York and New Jersey in spring and autumn, but does not, as far as I can discover, breed in any part of the United States. They are most frequently met with in the months of September and October, soon after which they disappear. The young birds of the great Black-bellied Plover are sometimes mistaken for this species. Hence the reason why Mr. Pennant remarks his having seen a variety of the Golden Plover, with black breasts, which he supposed to be the young. They usually fly in small flocks, and have a shrill, whistling note. They are very frequent in Siberia, where they likewise breed, and extend into Kamtschatka, and as far south as the Sandwich Islands. 'In the latter place,' says Mr. Pennant, 'they are very small.'"

This account shows the belief then existing that the European bird was identical with the American. Wilson's account of the breeding localities is just opposite to that of the above text. The latter is, probably, the correct one.

THE AMERICAN GOLDEN PLOVER (*Charadrius dominicus*) is distinguished by the ashen-gray of the inner surface of the wings, the latter being white. The *C. fulvus* of Asia is nearer. The Golden Plover is seen on all parts of our coast, but is never abundant, and is never met with in the interior. Dr. Coues saw it in considerable numbers on the Pacific coast. They were seen in company with the Tattlers and Esquimaux Curlews, and were quite tame, running rapidly and lightly in search of food; flew, with a mellow, whistling note, and settled again, with a momentary, graceful pose of the upturned wing. Audubon gives the following description of the bird:—

"The Golden Plover spends the autumn, winter, and part of the spring in various portions of the United States, appearing in considerable numbers both along the coast and in the interior, and not unfrequently on our highest grounds. A much greater number, however, proceed in severe winters beyond the limits of our Southern States, and the partial migrations of this species are much influenced by the state of the weather. They are more abundant along

the sea-shores of the middle and eastern districts from the middle of April to the beginning of May; whereas in autumn they range over the interior, and more especially the Western prairies. In the early part of May, they congregate in immense flocks, and commence their journey toward more northern regions, where they are said to breed.

"This bird moves on the ground with sprightliness. When observed, it often runs with considerable rapidity to some distance, suddenly stops short, nods once or twice, vibrating its body at the same time, and if it should imagine itself unnoticed, it often lies down and remains crouched until the danger is over. At the time of their departure from the north, and while on the sands of mud-bars on the sea-shore, they often raise their wings as if to air them for a few moments. While searching for food, they move in a direct manner, often look sideways toward the ground, and pick up the object of their search by a peculiar bending movement of the body. They are frequently observed to pat the moist earth with their feet, to force worms from their burrows. In autumn they betake themselves to the higher grounds, where berries as well as insects are to be met with, and where they find abundance of grasshoppers.

"When travelling to a considerable distance, the Golden Plover flies at the height of from thirty to sixty feet, in a regular manner, with considerable velocity, the flock, when large, forming an extended front, and moving with regular flappings, an individual now and then uttering a mellow note. Before alighting they often perform various evolutions, now descending and flying swiftly over the ground, then curving upwards or sidewise, closing and extending their ranks, until the sportsman is often tired of watching them, and after all, the flock, just when he expects it to alight, may suddenly shoot off and fly to a distance. When they alight without shooting distance, the moment their feet touch the ground is the critical one, for they are generally in a compact body, and almost immediately afterwards they disperse. I have often observed them, while flying from one place to another, suddenly check their course for a moment or two, as if to look at the objects below, in the manner of Curlews.

"While at New Orleans, I was invited by some French gunners to accompany them to the neighborhood of Lake St. John, to witness the passage of thousands of these birds, which were coming from the northeast and continuing their course. At the first appearance of the birds early in the morning, the gunners had assembled in parties of from twenty to fifty at different places, where they knew from experience the Plovers would pass. There, stationed at nearly equal distances from each other, they were sitting on the ground. When a flock approached, every individual whistled in imitation of the Plover's call-note, on which the birds descended, wheeled, and passing within forty or fifty yards, ran the gauntlet, as it were. Every gun went off in succession, and with such effect that I several times saw a flock of a hundred or more reduced to a miserable remnant of five or six individuals. The game was brought up after each volley by the dogs, while their masters were charging their pieces anew. This sport was continued all day, and at sunset, when I left one of these lines of gunners, they seemed as intent on killing more as they were when I arrived. A man near the place where I was seated had killed sixty-three dozens. I calculated the number in the field at two hundred, and supposing each to have shot twenty dozens, forty-eight thousand Golden Plovers would have fallen that day.

"On inquiring if these passages were of frequent occurrence, I was told that six years before, such another had occurred immediately after two or three days of very warm weather, when they came up with a breeze from the northeast. Only some of the birds were fat, the greater number of those which I examined being very lean; scarcely any had food in their stomach, and the eggs in the ovaries of the females were undeveloped. The next morning the markets were amply supplied with Plovers at a very low price."

According to Wilson, this bird is ten inches and a half long, and twenty-one inches in extent of wing. The sexes differ but little in color.

THE BLACK-BELLIED PLOVER (*Squatarola helveticus*) is an American bird. In September it is abundant on Long Island, feeding on the great plains. It is known among the gunners here as Black-bellied Killdeer. It is especially fond of ploughed fields, where it constructs its nest,—a few coarse materials, slightly put together. The female frequently has two broods in

one season, laying four large eggs, of a light olive, dashed with black. It is extremely shy and watchful, though noisy enough during the season of breeding.

According to Wilson, this bird is known in some parts of the country by the name of the large Whistling Field Plover, and the Bostonian naturalist, Charles B. Cory, places it among the "birds of the Bahama Islands." He writes:

"The Black-bellied Plover is a regular winter visitant to the Bahama Islands, although it cannot be considered as common. A single specimen was taken on Andros Island in January, and I observed several small flocks during the latter part of the month. They frequent the salt marshes and beaches."

Full information of this bird is given in Audubon's admirable work on the "Birds of America."

"This beautiful bird makes its appearance on our Southern coasts in the beginning of April, as I had many opportunities of observing in the course of my journey along the shores of the Gulf of Mexico. Instead of being congregated in large flocks, as is the case during their southward migration in autumn, they are seen coming in small numbers, but at short intervals, so as almost to form a continuous line. They travel chiefly by night, and rest for a great part of the day along the margins of the sea, either reposing on the sands in the sunshine, or searching the beaches for food. After dusk, their well-known cries give note of their passage, but by day they remain silent, even when forced to betake themselves to flight. On such occasions, they generally wheel over the waters, and not unfrequently return to the spot which they had at first selected. I have traced this species along the whole of our eastern coast, and beyond it to the rugged shores of Labrador, where my party procured a few on the moss-covered rocks, although we did not then find any nests, and where some young birds were obtained in the beginning of August.

"Individuals of this species spend the summer months in the mountainous parts of Maryland, Pennsylvania, and Connecticut, where they breed. I found their nests near the waters of the Delaware and the Perkioming creek, when I resided in the first of these States.

"Unless during the breeding seasons, they are exceedingly shy; but their anxiety for their young renders them forgetful of the danger which they incur in approaching man. The young, when two or three weeks old, run with great celerity, and squat in perfect silence when apprehensive of danger. When they are able to fly, several families unite and betake themselves to the sea-shore, where other flocks gradually arrive, until at length, on the approach of cold weather, almost all of them begin to move southward. Although the great body of these Plovers pass beyond the limits of the United States, some remain on the shores of the Floridas during winter. In their habits they are more maritime than the Golden Plovers, which, when migrating, generally advance over the land.

"The flight of this bird is swift, strong, and well sustained. When roaming over large sand-bars, they move in compact bodies, whirling round, and suddenly veering, so as alternately to exhibit their upper and lower parts. At this time old and young are intermixed, and many of the former have lost the black, so conspicuous on the neck and breast in summer. During winter, or as long as they frequent the sea-shore, they feed on marine insects, worms, and small shell-fish; and when they are in the interior, on grasshoppers and other insects, as well as berries of various kinds, on which they fatten so as to become tolerably good eating.

"As its habits agree with those of the Plovers generally, and as its form is similar to that of the Golden Plover and other species, the only difference being the presence of a rudimentary hind-toe, it was scarcely necessary to distinguish it generically from *Charadrius*, as many recent authors have done."

This bird resembles the Golden Plover, though it is considerably larger. The presence of the small hind-toe readily distinguishes it—no other Plover has it.

THE KILLDEER PLOVER (*Oxyechus vociferus*). This is one of the most familiar of the wading birds, known to gunners and visitors of the lowlands as a noisy, but exceptionally handsome bird. Its peculiar note, *killdeer, killdeer*, is uttered as it swiftly courses overhead. Its cries are heard after dark, and on moonlight nights. It is one of the few birds of this

group that breeds in all parts of the United States. Though so familiar in all parts, it migrates extensively, even so far as South America.

This bird usually nests in a very simple manner, but Wilson saw one of its nests lined with bits of clam-shells, and surrounded by a mound or border of the same placed very neatly. In some cases there is no vestige whatever of a nest. The eggs are four, of a rich cream, or yellowish-clay color, thickly marked with blotches of black. They are large for the size of the bird, being more than an inch and a half in length, and a full inch in width, tapering to a point at one end.

Concerning the breeding season, and the cries of the Killdeer Plover, Wilson speaks in the following words:—

“Nothing can exceed the alarm and anxiety of these birds during the breeding season. Their cries of *Killdeer, killdeer*, as they winnow the air overhead, dive and course around you, or run along the ground counterfeiting lameness, are shrill and incessant. The moment they see a person approach, they fly or run to attack him with their harassing clamor, continuing it over so wide an extent of ground, that they puzzle the pursuer as to the particular spot where the nest or young are concealed, very much resembling, in this respect, the lapwing of Europe. During the evening, and long after dusk, particularly in moonlight, their cries are frequently heard with equal violence, both in the spring and fall. From this circumstance, and their flying about, both after dusk and before dawn, it appears probable that they see better at such times than most of their tribe. They are known to feed much on worms, and many of these rise to the surface during the night. The prowling of owls may also alarm their fears for their young at those hours; but whatever may be the cause, the facts are so.”

In the months of February and March, these birds are abundant about the rice-fields of South Carolina. Their flesh is not esteemed like that of other species.

The flight of the Killdeer is something like that of the Terns, but more vigorous, sometimes extending to great heights. It runs with great swiftness, and in walking has a peculiarly stiff and horizontal aspect of the body. During extreme droughts, in summer, it visits pools and rivulets, but after the cooler season commences it returns to the sea-shore in small flocks, when it is more silent, and difficult to approach. It is ten inches in length, and twenty inches in extent of wing.

THE RING PLOVER (*Ægialites hiaticula*), also called Semipalmated Plover, is closely like the European species of that name. Wilson was aware of this relationship, and was somewhat puzzled to reconcile it.

Audubon gives the following account of this bird: “I have had great pleasure in observing the migrations of this species, particularly in early spring, when great numbers enter the southern portions of the United States, on their way northward, where it is well known to breed. At that period, whatever attempts you may make to prevent their progress, they always endeavor to advance eastward; whereas in early autumn, they will rove in any direction, as if perfectly aware that the task imposed upon them by Nature having been accomplished, they may enjoy their leisure. Those which pass the winter within the limits of the Union are mostly found along the shores of South Carolina, Georgia, the Floridas, and as far south as the mouths of the Mississippi; there being no doubt that many remain on the coasts of the Gulf of Mexico, as I have found some there early in the spring, before observing those which I knew by their manners to be recently arrived. In the course of my late visit to Texas, I found them on Galveston Bay, where I observed some arriving from the westward.

“During their polar migration, they proceed rather swiftly, for, although they appear to touch at every place likely to afford them food and repose, they seldom tarry long. Thus, many individuals, which may have been in Texas early in April, not unfrequently reach Labrador by the middle of May, although some are a month later in reaching the ultimate point of their journey, which, according to Dr. Richardson, sometimes extends as far as the Arctic regions.

“While with us in spring, they confine themselves to the sandy beaches of our sea-coasts, whether on the mainland or on islands, but when they arrive at their breeding stations, they

abandon their maritime life, and resort to mountainous, mossy lands, as is also the custom with several other species. On my way to Labrador, I saw some of them in almost every place at which we landed; and when I reached Nartasguan Bay, they were breeding in all the spots that were adapted for that purpose. Their manners formed an agreeable subject of observation to all the members of my party. As soon as one of us was noticed by a Ring Plover, it would at once stand still and become silent. If we did the same, it continued, and seldom failed to wear out our patience. If we advanced, it would lower itself and squat on the moss, or bare rock, until approached, when it would suddenly rise on its feet, droop its wings, depress its head, and run with great speed to a considerable distance, uttering all the while a low, rolling, and querulous cry, very pleasing to the ear. On being surprised, when in charge of their young, they would open their wings to the full extent, and beat the ground with their extremities, as if unable to rise. If pursued, they allowed us to come within a few feet, then took flight, and attempted to decoy us away from their young, which lay so close that we very seldom discovered them, but which, on being traced, ran swiftly off, uttering a plaintive peep, often repeated, but never failing to bring their parents to their aid. At Labrador, the Ring Plover begins to breed in the beginning of June. On the 2d of July I procured several young birds, apparently about a week old; they ran briskly to avoid us, and concealed themselves so closely by squatting, that it was very difficult to discover them even when only a few feet distant.

"This species, like the Piping Plover (*Ægialites melodus*, Ord.), forms no nest; and whilst the latter scoops a place in the sand for its eggs, the Ring Plover forms a similar cavity in the moss, in a place sheltered from the north winds, and exposed to the full rays of the sun, usually near the margins of small ponds formed by the melting of the snow, and surrounded by short grass. Some of these pools are found on the tops of the highest rocks of that country. The eggs, like those of all the family, are four, and placed with the small ends together. They are broad at the larger end, rather sharp at the other, measure $1\frac{1}{4}$ inches in length, $7\frac{1}{3}$ inches in their greatest breadth, are of a dull yellowish color, irregularly blotched, and spotted all over with dark brown of different tints. The young are at first of a yellowish-gray color, prettily marked with darker spots on the shoulders and rump. As soon as their parents dismissed them, they were observed searching for food among the drying cod-fish, and along the beaches.

"By the 12th of August, all the individuals which had bred in Labrador and Newfoundland, had taken their departure, migrating southward in company with the Phalaropes and Sandpipers. Many of these birds proceed by our great lakes and rivers, they being sometimes seen in September along the shores of the Ohio and Mississippi. At this period they are now and then observed on ploughed lands, where they appear to procure different species of seeds and insects. Along the whole extent of our Atlantic shores they are numerous at this season, and great numbers are killed, the flesh of the young birds especially being juicy and tender.

"The flight of this species is swift and sustained. They are fond of associating with other birds of similar habits, and are generally unsuspicious, so that they are easily approached. When on wing, their notes are sharp, sonorous, and frequently repeated. The young members of my party were often much amused by witnessing our pointer chasing the old birds, whilst the latter, as if perfectly aware of the superiority in speed, would seem to coax him on, and never failed to exhaust him by flying along the declivities of the rocks up to their summits, and afterwards plunging downwards to the base, thus forming great circuits over a limited range. Their food consists of small crustacea, mollusca, and the eggs of various marine animals. The old males are very pugnacious in their breeding season, and engage in obstinate conflicts, drooping their wings, and having their tail fully spread out in the manner of some species of Grouse on similar occasions."

THE MOUNTAIN PLOVER (*Podasocys montanus*). This is remarkably circumscribed in its *habitat*, being confined to the region bounded by the northern line of the United States, the centre of Kansas, Nebraska, South-western Dakota, Mexico, and the Pacific Coast. Mr. Cassin surmised that it penetrated to South America in winter. It is known to breed in the northern

portions of its range. The name Mountain Plover is scarcely appropriate. The bird inhabits high plains, but not, in any sense, mountains. Quite unlike other Plovers, it does not frequent the seashore, and is in no degree an aquatic bird, but prefers dry, sterile plains; accompanying Shore Larks, Titlarks, and the Burrowing Owl. It sometimes inhabits sandy plains, where the prickly pear and wild sage grow abundantly. It is seen in New Mexico, between the Rio Grande and the base of the mountains, in great abundance, associated with Long-billed Curlews. Dr. Coues tells us that they, on being disturbed, "lower the head, and run rapidly a few steps in a light, easy way, and then stop abruptly, drawing themselves up to their full height, and looking around with timid yet unsuspicious glances. Their notes are rather peculiar, as compared with those of our other Plovers, and vary a good deal, according to circumstances. When the birds are feeding at their leisure, and no way apprehensive of danger, they utter a low and rather pleasing whistle, though in a somewhat drawling, or rather lisping, tone; but the note changes to a louder and higher one, sometimes sounding harshly. When forced to fly by persistent annoyance, they rise rapidly, with quick wing-beats, and then proceed, with alternate sailing and flapping, during the former action holding the wings decurved. They generally fly low over the ground, and soon re-alight, taking a few mincing steps as they touch the ground. They then either squat low, in hopes of hiding, or stand on tip-toe, as it were, for a better view of what alarmed them."

The food of this Plover consists of insects mostly, especially the grasshoppers, when great numbers are present. It is then this bird is excellent eating, becoming very fat from the superabundance of food.

WILSON'S PLOVER (*Ochthodromus wilsonius*). This bird is almost as circumscribed in *habitat* as the preceding, but on precisely opposite sides of the hemisphere; its range being confined to the eastern and southern portions of the United States, and the same in South America. Its long, stout bill renders it easily known; its short tail also is a characteristic feature.

When Wilson wrote about the birds of America, this bird was regarded as new to him. It was subsequently named in his honor, by Mr. Ord. Referring to this bird, he wrote:—

"Of this neat and prettily marked species, I can find no account, and have concluded that it has hitherto escaped the eye of the naturalist. The bird was shot on the shore at Cape Island, New Jersey, by my ever-regretted friend, and I have honored it with his name. It was a male, and was accompanied by another of the same sex, and a female, all of which were fortunately obtained." Its favorite resort is the sandy flats near the sea-shore.

The ever-enthusiastic Audubon praises the bird in the highest terms:—

"Reader, imagine yourself standing motionless on some of the sandy shores between South Carolina and the extremity of Florida, waiting with impatience for the return of day; or, if you dislike the idea, imagine me there. The air is warm and pleasant, the smooth sea reflects the feeble glimmerings of the fading stars, the sound of living thing is not heard. Nature, universal Nature is at rest, and here am I, inhaling the grateful sea-air, with eyes intent of the dim distance. See the bright blaze that issues from the verge of the waters! and now the sun himself appears, and all is life, or seems to be; for, as the influence of the Divinity is to the universe, so is that of the sun to the things of this world. Far away, beyond that treacherous reef, floats a gallant bark, that seems slumbering on the bosom of the waters like a silvery sea-bird. Gentle breezes now creep over the ocean, and ruffle its surface into tiny wavelets. The ship glides along, the fishes leap with joy, and on my ear comes the well-known note of the bird which bears the name of one whom every ornithologist must honor. Long have I known the bird myself, and yet, desirous of knowing it better, I have returned to this beach many successive seasons for the purpose of observing its ways, examining its nest, marking the care with which it rears its young, and the attachment which it manifests to its mate. Well, let the scene vanish!

"Wilson's Plover! I love the bird and its name, because of the respect I bear towards him to whose memory the bird has been dedicated. How pleasing, I have thought, it would have been to me, to have met with him on such an excursion, and, after having procured a few of his own birds, to have listened to him as he would speak of a thousand interesting facts

connected with his favorite science, and my ever-pleasing pursuits! How delightful to have talked, among other things, of the probable use of the double claws which I have found attached to the toes of the species which goes by his name, and which are also seen in other groups of shore and sea birds! Perhaps he might have informed me why the claws of some birds are pectinated on one toe and not on the rest, and why that one itself is so cut. But, alas! Wilson was with me only a few times, and then nothing worthy of his attention was procured."

It resembles the Ring Plover, except in the length and color of the bill, its size, and in wanting the yellow eyelids. The sexes differ somewhat, but the male and female of Ring Plovers are alike. At Cape May, the Wilson Plovers were quite abundant at this time, going in flocks of considerable numbers, yet it was regarded as a rare bird.

The voice is an agreeable piping note. Its length is seven inches and three quarters, and extent of wing fifteen and a half inches.

THE DOTTEREL, which is represented in the illustration on page 521, has long been held as the type of stupidity, and to call a man a Dotterel is considered as great an insult as to term him a goose or a donkey.

Certainly, the Dotterel is not a very wise bird in some things, having but little of the general wary habits of the Plovers, and allowing itself to be approached without displaying much uneasiness. It was once thought to be so very inquisitive and so foolish as to imitate all the actions of the fowler, holding out a wing if he held out an arm, lying flat if he did the same, and so permitting the net to be thrown over it before it was aware of any danger. It is not now so plentiful as it used to be, its numbers having been much thinned by guns and nets. Its flesh is thought very good, and the bird finds a ready sale in the poulterer's shop. The specific title *Morinellus*, signifies a little fool. The cry of the Dotterel is a kind of piping whistle.

The breeding-places are selected on high grounds, and the eggs, mostly three in number, are placed on a few grass stems laid carelessly in a depression in the soil, sheltered in most cases by a large stone or fragment of rock. The color of the eggs is like that of the Golden Plover.

The top of the head and back of the neck are dark brown; above the eye a rather broad white streak runs towards the nape of the neck, and the chin and sides of the face are white, speckled with darker tints. The back is ashen-brown, and the scapularies and wing-coverts are edged with buff. The primaries are ashen-gray mixed with white. The throat is ashen-gray, and the breast is rich dark fawn, crossed by a bold white streak, extending completely across the breast and terminating at the shoulders. The abdomen is black, and the under tail-coverts buffy white. In the summer the breast is buffy white. The total length of this bird is not quite ten inches.

THE pretty little KENTISH PLOVER may be seen on some of our shores, running along the edge of the waves with surprising celerity, pecking here and there as the waves retreat, and uttering its happy whistling little notes as it runs.

It bears a considerable resemblance to the ringed Plover (*Charadrius hiaticula*), but may be distinguished from that bird by the smaller size and the broken black collar on the neck, which does not extend completely across the breast. The best mode of observing this bird, or, indeed, the many species that haunt the shores, is to get on the cliffs, lie down among the high grass and herbage, and make use of a good double field-glass. With an ordinary telescope the birds get out of the field too rapidly, and they are liable to be alarmed by the movements of the tube.

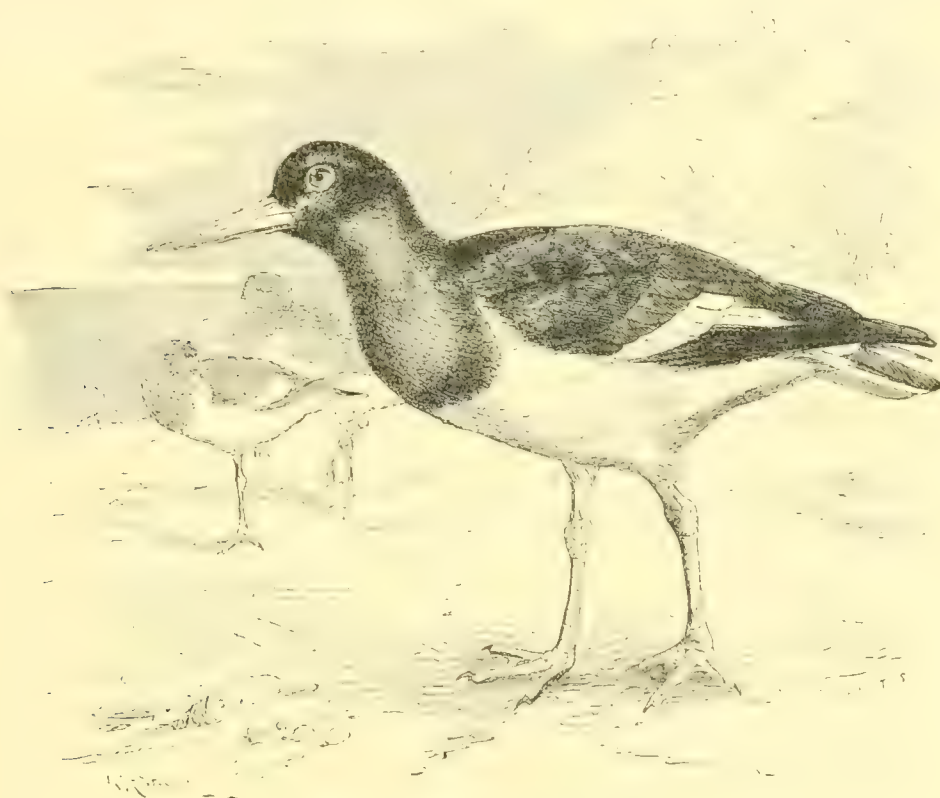
The eggs of this bird are laid in a hollow scraped in the sand or the fine shelly shingle. There is no nest excepting the sand. The color of the eggs is yellowish-olive with streaks and spots of black.

The top of the head is rich chestnut, the forehead white, with a black patch immediately above the white, and a slight streak of white passes near the eye. The ear-coverts are black, and the edge of the neck is grayish-white. The chin, sides of the throat, breast, and under parts are white, except a black collar which very nearly crosses the breast, but leaves a white

space in front. The back and upper parts are ashen-brown, and the primaries dull black. The length of the adult bird is not quite seven inches.

THE handsome OYSTER-CATCHER is another of our coast birds, and is tolerably plentiful upon the shore. From the black and white hues of its plumage, it is sometimes called the Sea-Pie.

It generally keeps to the shore, haunting sandy bays, interspersed with partially submersed rocks, and picking up its subsistence with great animation. It feeds mostly on mollusks, mussels and limpets being ordinary articles of its food. It is able to detach the firmly-clinging limpet from the rock by striking a sharp blow with its wedge-like beak,



OYSTER-CATCHER.—*Hematopus ostralegus*.

and detaching the mollusk before it has had time to take the alarm and draw itself firmly against its support. It is swift of foot, and a good swimmer, frequently taking to the water in search of food, and being able to dive when alarmed. Diving, however, does not seem to be a favorite accomplishment, and is seldom resorted to unless under peculiar circumstances.

In some parts of Europe, the Oyster-Catcher makes short inland migrations during the summer, but even in such cases it displays its aquatic propensities by keeping near the river banks, and feeding on the worms, slugs, and similar creatures.

The nest of the Oyster-Catcher is merely a hole scraped in the ground, wherein lie three or four eggs of a yellowish-olive, spotted with gray and brown. They are generally placed on the beach, well above high-water mark, but the bird sometimes makes its home at some distance from the sea. The flat sandy coasts seem to be the localities most favored by the Oyster-Catcher. The young are covered with soft down of a grayish-brown color.

The head, neck, upper part of the breast, scapularies, quill-feathers, and latter half of the tail-feathers are deep shining black, and the rest of the plumage is pure white. The curious beak is three inches in length, very much compressed—*i. e.*, flattened sideways—and towards the point is thinned off into a kind of wedge or chisel-shaped termination. The rich ruddy

color is deepest at the base. During some of the winter months there is no white collar round the throat, and in the yearling bird the back and wings are mottled with brown. The total length of the Oyster-Catcher is about sixteen inches.

This European Oyster-Catcher is occasionally found in America.

THE AMERICAN OYSTER-CATCHER (*Hematopus palliatus*). This interesting bird frequents the sandy shores of the United States. It is extremely shy, seldom permitting any one to approach it within gunshot. It walks with a stately, watchful manner; now and again probing for shellfish. Its great love for oysters has given the species its name. The thick shells naturally present a complete barrier to their bills, stout as they are, but the bird is said to watch quietly until the shells are wide open, when the bill is suddenly thrust in and the meat abstracted. It flies with great vigor and velocity, uttering a deep, shrill whistling, *wheep-wheep-wheo*. A flock will rise as one body, wheel, and sweep the air with great uniformity, reminding one of a squad of drilled soldiers; the white of their wings now and then conspicuously showing.

The Oyster-Catcher can dive and swim well, and takes to the water when wounded.

The only means of studying the habits of the shy bird Audubon found to be the use of a telescope, with which he could trace its motions when at the distance of a quarter of a mile. According to his statements, the bird forms no regular nest, "but is contented with scratching the dry sand above high-water mark, as to form a slight hollow, in which it deposits its eggs. On the coast of Labrador, and in the Bay of Fundy, it lays its eggs on the bare rock. When the eggs are on sand, it seldom sits on them during the heat of the sun; but in Labrador, it was found sitting as closely as any other bird. Here, then, is another instance of the extraordinary difference of habit in the same bird under different circumstances. It struck me so much, that had I not procured a specimen in Labrador, and another in our Middle Districts, during the breeding season, and found them on the closest examination to be the same, I should perhaps have thought the birds different. Everywhere, however, I observed that this bird is fond of places covered with broken shells and drifted sea-weeds or grasses, as a place of security for its eggs, and where, in fact, it is no very easy matter to discover them. The eggs are two or three, measure two inches and one-eighth in length, by an inch and a half in breadth, and are of the form of those of a common hen. They are of a pale cream-color, spotted with irregular marks of brownish-black, and others of a paler tint, pretty equally dispersed all over. The birds, even when not sitting on them, are so very anxious about them, that on the least appearance of an enemy, they scream out loudly, and if you approach the nest, fly over and around you, although always at a considerable distance. When you meet with the young, which run as soon as they are hatched, the old birds manifest the greatest anxiety. They run before you, or fly around you with great swiftness, and emit peculiar notes, which at once induce their little ones to squat among the sand and broken shells, where, on account of their dull grayish color, it is very difficult to see them unless you pass within a foot or two of them, when they run off, emitting a plaintive note, which renders the parents doubly angry. Their shape is now almost round, and the streaks of their back and rump, as well as the curved points of their bills, might induce you to believe them to be anything but the young of an Oyster-Catcher. I have caught some, which I thought were more than a month old, and yet were unable to fly, although full feathered. They appeared weakened by their fatness, and were overtaken by running after them on the sands. There were no parent-birds near or in sight of them; yet I must doubt if they procured their own food at this period, and have more reason to believe that, like some other species of birds, they were visited and supplied with food at particular hours of the day or of the night, as is the case with Herons and Ibises, for the Oyster-Catcher is scarcely nocturnal.

"By the beginning of October these birds return to the south. I saw them at Labrador until the 11th of August.

"The flight of the American Oyster-Catcher is powerful, swift, elegant at times, and greatly protracted. While they are on the wing, their beauties are as effectually displayed as those of the Ivory-billed Woodpecker of our woods, the colors of which are somewhat similar.

The transparent white of their wings contrasts with their jetty tips, and is enriched by the coral hue of the bill, while the beautiful white of their lower parts has a very pleasing effect."

THE BLACK OYSTER-CATCHER (*Hamatopus niger*) is another American species.

THE handsomely plumed TURNSTONE is, though a little bird, so boldly decorated with black, white, and ruddy orange, that it is more conspicuous upon the coast than birds of double its size.

The name is derived from its movements when feeding, at which times it runs along the beach, picking up sandhoppers, marine worms, and other creatures, and turning over the stones in its course for the purpose of getting at the small crustacea that are generally found



TURNSTONE.—*Streptas interpres*.

in such situations. This bird is spread over a considerable portion of the world, and is found even in Northern America, where it retains the same habits which distinguish it in Europe. According to Wilson, it feeds almost wholly, during May and June, on the spawn of the king-crab, and is known by the name of the Horse-foot Snipe, the king-crab being popularly called the horse-foot crab. It runs with some speed, but not the rapidity that characterizes many shore-loving birds, and spends some time in examining any spot of ground to which it has taken a fancy, tossing the pebbles from side to side, and picking up the unfortunate being that may have lain under their shelter.

The nest of this bird is situated upon the coast, and the bird is very valiant in its attacks upon the gulls which approach too near its home. A nest found by Mr. Hewitson "was placed against a ledge of rock, and consisted of nothing more than the drooping leaves of the juniper-bush, under a creeping branch, by which the eggs, four in number, were snugly concealed, and admirably sheltered from the many storms by which these bleak and exposed rocks are visited, allowing just sufficient room for the bird to cover them. The several nests that we examined were placed in the same situation as the one described, with the exception of two, one of which was under a slanting stone, the other on the bare rock; all the nests contained

four eggs each. Their time of breeding is about the middle of June. The eggs measure one inch seven lines in length, by one inch two lines in breadth, of an olive-green color spotted and streaked with ash-blue and two shades of reddish brown." These nests were found on the coast of Norway.

A peculiar characteristic is seen in this bird; the plumage is scarcely alike in any two specimens; the coloration varies extremely, but, for example, the coloring of one specimen may be described:—

The top of the head is white streaked with black, and a black band crosses the forehead and passes over the eyes. The chin, face, and sides of the neck are white, and the breast is jetty black, throwing out black branches shaped like the gnarled boughs of the oak, which run to the base of the bill, the lower eyelid, the back of the neck, and the shoulders. The upper part of the back is also black, with a band of bright rust-red, and the lower part white, with a broad band of black just above the tail-coverts. The under parts are pure white, and the legs and toes are scarlet orange. The length of the bird is rather more than nine inches.

The Turnstone is rather solitary in habit, seldom mingling with other birds in flocks—either coursing the sands alone or in company with a few of their own species. The bill is turned upwards a trifle, seemingly so designed to aid it in turning up stones. It is abundant in Hudson Bay and Greenland, and in the Arctic flats of Siberia, where it breeds, wandering southerly in autumn. It flies with a loud twittering note, and runs with its wings lowered, but not with the rapidity of others of the tribe. It has a habit of examining the same spot for a long time, tossing up pebbles with its bill, and searching with great persistence for worms and small mollusks. The length of body is eight inches, extent of wing seventeen inches. The sexes are much alike.

Sea Dotterel is an old name for this bird. It extends its *habitat* to Cape Good Hope and Senegal. It is naturally wild in disposition and solitary, coursing in pairs, or small families which have been bred in families.

THE BLACK TURNSTONE (*Streptilas melanocephala*) is another species, rather common on the Atlantic coast.

THE bird represented on the following engraving is a native of Tropical America.

THE GOLDEN-BREASTED TRUMPETER is a handsome bird, remarkable for the short velvety feathers of the head and neck, and their beautiful golden-green lustre on the breast. The body of this bird is hardly larger than that of a fowl, but its legs and neck are so long as to give it the aspect of being much larger than it really is. Like most birds of similar structure, it trusts more to its legs than its wings, and is able to run with great speed and activity. It is generally found in the forests.

As it is very easily tamed, it is a favorite inmate of the house, where it soon constitutes itself the self-chosen guardian, watching the premises as jealously as any dog, and permitting no other bird or beast to share its owner's favors at the same time. Dogs and cats it dislikes, and turns them out of the room when meal-times approach. The dog sometimes fights for its privileges, but mostly in vain, for the Trumpeter has a way of rising into the air, coming down on the dog's back and striking him with bill and feet, that effectually puzzles the four-footed foe and forces him to vacate the field of battle. It is said to learn to drive sheep, and to perform this arduous duty as well as any dog.

The name of Trumpeter is derived from the strange hollow cry which it utters without seeming to open the beak. This cry is evidently produced by means of the curiously formed windpipe, which is furnished with two membranous expansions, and, during the utterance of the cry, puffs out the neck very forcibly, just as the rhea does when grunting. The nest of the Trumpeter is said to be a hole scratched in the ground at the foot of a tree, and to contain about ten or twelve light green eggs. The head and neck are velvety black, and on the breast the feathers become large, rounded, and more scale-like, and their edges are beautifully bedecked with rich shining green with a purplish gloss in some lights and a lustrous golden hue in others. The back is gray, the feathers being long and silken and hanging over the

GOLDEN-BREADED TRUMPETER.—*Psophia crepitans*.

wings. The wings, under surface, and tail are black, and the feathers of the tail are soft and short

THE ÇARIAMA is rather larger than the trumpeter, and has many of the same habits. It is chiefly remarkable for the feathery crest on the crown and forehead. Its picture is given on the next page.

The Çariama is an admirable runner, getting over the ground with astonishing speed, and turning and twisting with such adroit rapidity that even the admirable horsemen of its native land find it put their skill to the sharpest test. Not until it is quite wearied out, and crouches under a bush or other shelter, does the hunter endeavor to use either rifle or lasso, the two deadly weapons of his land. The walk of this bird is peculiarly bold and easy, its paces are long, its lithe neck moves with every step as it continually turns its little sharp-looking head from side to side, and its full intelligent eyes gleam through their heavy lashes as they survey every object within their ken. The eyes are truly beautiful, large, round, and translucent, of a clear pearly-gray, with many little dark changing spots, much like the eye of a living dragon-fly.

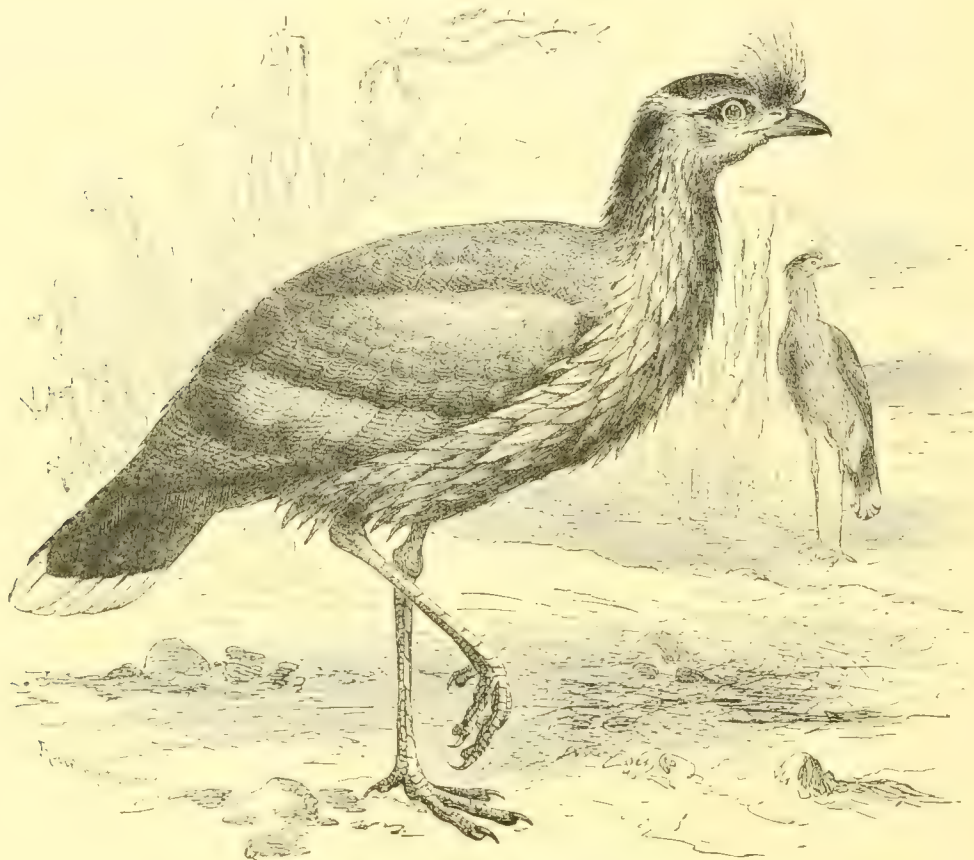
It is easily tamed, and soon becomes so attached to its new home that it is accustomed to roam about at will, and to return to its owner like the common fowl. The nest of this bird is placed upon the branches of a rather low tree, is made of sticks, and generally contains two white eggs.

The general color of the Çariama is pale brown, with numerous irregular splashes of dark brown. The crest is always held erect, and the feathers of the forehead project slightly over the beak. The wing is blacker brown than the rest of the body, and is covered with narrow white streaks, dotted with black. The under parts are grayish-white, the bill is red, and the legs orange. In total length it measures about thirty-two inches.

ALTHOUGH in former days tolerably common all over Europe, the CRANE has now, with the bustard, almost disappeared from the northern countries of the Eastern hemisphere. A

single specimen may be seen there at very long and increasing intervals. In some countries the popular name of the heron is the Crane, so that the occasional reports published here respecting the Crane, which sometimes find admission into newspapers, have often reference, not to that bird, but to the heron.

The Crane is found in various parts of the continent of Europe, migrating from place to place, and flying in large flocks at a great elevation in the air. They continue their aerial journeys for great distances, and seldom descend but for the purpose of feeding. When they alight, it is generally on marshy ground, the banks of rivers, or the coasts of the sea, where they can find a bountiful supply of marine and aquatic animals; and sometimes they are attracted by a field of newly-sown corn, among which they make sad havoc, stocking up the seed with their long bills, or eating the newly-sprouted blades. The food of the Crane is



CHARIAMA — *Dicholophus cristatus*.

various, mostly consisting of worms, slugs, frogs, lizards, newts, and similar creatures; but the bird will often feed upon grain and the leaves of different plants.

The voice of the Crane is loud, resonant, and trumpet-like, and has a singular effect, when heard from the great elevation at which the bird prefers to fly. The peculiar resonance of the note is caused by a remarkable structure of the windpipe, which is elongated, and instead of running straight down the neck, passes into the breast-bone, lodges between the two plates of bone which form the keel, and, after making some contortions which vary according to the age of the bird, leaves the breast-bone and proceeds as usual to the lungs.

The Crane makes its nest mostly on marshy ground, placing it among osiers, reeds, or the heavy vegetation which generally flourishes in such localities. Sometimes, however, it prefers more elevated situations, and will make its nest on the summit of an old deserted ruin. The eggs are two in number, and their color is light olive, covered with dashes of a deeper hue and brown. The well-known plumes of the Crane are the elongated tertials, with their long drooping loose webs, which, when on the wings of the bird, reach beyond the primaries.

The forehead, top of the head, and neck are rather dark slaty-ash, and a patch of grayish-white extends from behind the eyes, partially down the neck on each side. The general surface of the body is soft ashen-gray, and the primaries are black. The long plummy tertials form two crest-like ornaments, which can be raised or depressed at will. The eyes are red, and the beak is yellow, with a green tinge. The total length of the adult Crane is about four feet, but it is rather variable in point of size, and the males are rather larger than the females.

THE two following birds are remarkable, not only for their beauty of form and plumage, but for the extraordinary antics in which they occasionally indulge.

THE DEMOISELLE, or NUMIDIAN CRANE, is common in many parts of Africa, and has been seen in some portions of Asia, and occasionally in Eastern Europe. The movements of this



DEMOISELLE CRANE.—*Anthropoides virgo*.

CROWNED CRANE.—*Balearica pavonina*.

beautiful bird are generally slow and graceful, with a certain air of delicate daintiness about them which has earned for it the title of Demoiselle. But on occasions it is seized with a fit of eccentricity, and puts itself through a series of most absurd gambols, dancing about on the tips of its toes, flapping its wings, and bowing its head in the most grotesque fashion. It may sometimes be seen performing these antics in the Zoological Gardens, but it is very capricious in its habits, and, like the parrot, will seldom perform its tricks when it is most desired to do so.

It is a very pretty bird, the soft texture of the flowing plumage, and the delicate grays of the feathers, harmonizing with each other in a very agreeable manner. The general tint of the plumage is blue-gray, taking a more leaden tone on the head and neck, and offering a beautiful contrast to the snowy-white ear-tufts, issuing from velvety-black, which decorate the head. There is also a tuft of long flowing plumes of a deep black gray, hanging from the breast. Its

secondaries are much elongated, and hang over the primaries and tail-feathers. In height the Demoiselle Crane is about three feet six inches

THE CROWNED CRANE is even more striking than the demoiselle, its coronet of golden plumes and the scarlet cheeks making it a very conspicuous bird.

This species is a native of Northern and Western Africa, where it is usually found in swampy and marshy localities, which it frequents for the purpose of feeding on the insects, mollusks, reptiles, and fishes which are to be caught abundantly in such places. Like the demoiselle, the Crowned Crane occasionally indulges in fantastic gambols, and on account of the conspicuous crest and general aspect of the bird, they have an effect even more ludicrous.

In captivity the Crowned Crane thrives well, and its habits can be readily watched. At the Zoological Gardens there are some fine specimens of these birds, and an hour may be pleasantly spent in watching their proceedings. Sometimes they rest still and stately, one leg tucked under them quite out of sight, and the body balanced on the other. Sometimes they like to sit on their bent legs, their feet projecting far in front of them, and their knees, or rather their ankles, sustaining the weight of the body. At another time they will walk majestically about their inclosure, or begin their absurd dances, while a very favorite amusement is to run races at opposite sides of the wire fence, and then come to a halt, each bird trying which can yell the loudest. The voice is very loud, and has something of a trumpet in its hollow ringing resonance.

The forehead is black, the feathers being short and velvety. From the top of the head rises a tuft of long straight filamentary plumes, of a golden hue, fringed with very delicate black barbules. The skin of the cheek is bare, and the greater part of it is bright scarlet, the upper part being white, and running into a small wattle on the throat. The general color of the plumage is slaty-gray, and the primaries and quill-feathers of the tail are black, the long secondaries are brown and the wing-coverts snowy-white. The height of this species is about four feet.

THE WHOOPING CRANE (*Grus americana*). The *habitat* of this bird is the restricted region of the middle of North America. It ranges up the Mississippi valley, spreading through fur countries. It is also found in Texas and Florida, and occasionally up the coast to the Middle States. Dr. Turnbull states that in Wilson's time it bred in New Jersey. It is thought to breed from Dakota and Minnesota northward. This is the largest and most stately bird in this country. It is not equalled, perhaps, unless the largest wild turkey may be about the size. The long neck and long legs are features that render the Crane much the more imposing. Dr. Coues says of it: "I have only seen it on the broad prairies, or soaring on motionless pinions in spiral curves high overhead. Its immense stature is sometimes singularly exaggerated by that quality of the prairie air which magnifies distant objects on the horizon, transforming sometimes a bird into a man, or making a wild turkey excite suspicion of a buffalo."

This Crane is extremely shy and vigilant, so that it is very difficult to approach. It sometimes rises to a great height, its voice being heard when it is even out of sight. On such occasions several fly around in large circles, as if reconnoitering the country to a vast extent for a fresh quarter to feed in. Their flesh is said to be well tasted.

"Cranes are distinguished from all other families of birds by the comparative baldness of their heads, the broad flag of plumage projecting over the tail, and in general by their superior size. They also differ in internal organization. The length of this bird is four feet six inches, from the point of the bill to the end of the tail, and when standing erect, it measures nearly five feet. The bill is six inches long, straight, and extremely sharp; the forehead, whole crown and cheeks are covered with a warty skin, thinly interspersed with black hairs; head is of an ash color; the rest of the plumage, pure white, the primaries excepted, which are black. From the root of each wing arises numerous large, flowing feathers, projecting over the tail and tips of the wings; the uppermost of them are broad, drooping, and pointed at the extremities; some of them are also loosely webbed, their silky fibres curling inward, like those of an ostrich; they seem to occupy the place of the tertials."—WILSON.

A very remarkable anatomical character is noticed in this species, very similar to that in the Trumpeter Swan. These birds are noted for their extremely loud and discordant voices. The presence of the peculiar development may be said to have some relation to the latter.

The keel of the breast-bone is usually quite narrow and even in thickness. In the Whooping Crane this bone is enlarged to admit the windpipe, which it does by entering the front edge, pressing the two sides apart; continuing on and coiled within the substance of the breast-bone, it emerges in front again and passes into the lungs. All this makes the trachea or windpipe fifty-eight inches in length, twenty-eight inches of it being inside the keel of the breast-bone.

THE SAND-HILL CRANE (*Grus canadensis*) inhabits the United States from Florida, through the Mississippi valley, north to the Yukon and Baffin's Bay. It is also found in Cuba. It breeds nearly throughout this range. No record of its appearance in the Eastern States is known, or east of the Mississippi and its tributaries, according to Dr. Coues, excepting in Florida, where it is abundant. In Northern Dakota it breeds abundantly. To those not familiar with the great numbers of wild birds, and numbers of species, the accounts by authors would seem to be almost fabulous. Dr. Coues is always at the front in his pleasing and scholarly descriptions; his account of this Crane is as follows: "Often, as we lay together, encamped on the Mouse River, the stillness of midnight would be broken by the hoarse, rattling croaks of Cranes coming overhead, the noise finally dying in the distance, to be succeeded by the shrill pipe of numberless waders, the honking of geese, and the whistle of the pinions of myriads of wild fowl that shot past, sounding to sleepy ears like the rushing of a far-away locomotive."

"In the fall, the Sand-hill Cranes are found on all the prairies near Fort Steilacoom, but are not indifferent to a choice of certain spots. These are generally old 'stubble fields,' or spots of ground that have been ploughed. They rise heavily and slowly from the ground on being disturbed, and, flying in circles, at length find the desired elevation. When proceeding from one feeding point to another, or when migrating, the flight is high, and not unfrequently their approach is heralded before they are in sight by their incessant whooping clamor. While feeding they are generally silent."—DR. SUCKLEY.

Dr. Newberry says they are common in the markets of California, where they are esteemed as food. He adds that they "were abundant about Klamuth Lake, and early in September, in the Cascade Mountains, in Oregon, the Cranes were a constant feature in the scenery of the lonely mountain meadows in which we encamped. We found them always exceedingly shy, and diffident of approach, but not unfrequently the files of their tall forms stretching above the prairie grass, or their discordant and far-sounding screams, suggested the presence of the human habitations of the region, whose territory was now invaded for the first time by the white man."

A smaller species, or rather one standing lower than the preceding, is found in New Mexico, called Little Crane (*Grus fraterculus*).

THE bird represented by the accompanying illustration affords an example of the Egrets.

THE AMERICAN EGRET (*Herodias alba egretta*) is a native of several parts of America, having its principal residence in the southern portions of that continent, and visiting the more northern districts during several months of the year, arriving generally about February or March. As it finds its food among inundated and swampy grounds, it is generally seen haunting the rice-fields, the marshy river-shores, and similar localities, and seldom if ever visits the high inclosed regions. The food of the Egret consists of the smaller mammalia, little fish, frogs, lizards, snakes and insects. It is a handsome and elegant bird, and is conspicuous among the low marshy grounds which it frequents, on account of its large size, being about three feet in length.

The beautiful loose feathers of the train, which fall from the shoulders over the back, are not fully developed until the third year. The term Egret is applied to certain of the

herons, from the fact that these flowing feathers are suggestive of plume the French of which is *aigrette*. The train-feathers are also employed in the decoration of head-dresses. The Egret breeds chiefly in extensive cedar-swamps, placing its nest on the branches of trees, and laying three or four large pale blue eggs. The young are usually hatched about the end of June; and when they are strong enough to walk about, they associate in little flocks of twenty or thirty in number.

The color of the Egret is pure snowy-white, with the exception of the train, which has a



AMERICAN EGRET.—*Herodias alba egretta*.

creamy-yellow tinge. The feathers of the train are so long that when they are fully developed they hang over the tail and quite conceal it. The long sharp bill is nearly six inches in length, and its color is rich golden-orange, darkening into black at the tip. The long legs are black and the eye is rather pale orange. In total length the adult bird is about four feet, if the measurement be taken to the end of the train. Both sexes have the same plumage.

The White Egret is rather delicate, preferring warm weather, and consequently restricted in geographical distribution. In New England it is only a rare visitor, and is not known to breed. Massachusetts is the northernmost limit. On the Pacific coast it is not known north of California. Wilson says it breeds in the cedar swamps of New Jersey. Like other Herons, it builds on the tops of high trees, in societies.

THE well-known HERON was once one of the commonest European birds, but on account of the draining of swamps and their conversion into fertilized and habitable ground, is now seldom to be seen except in certain localities which still retain the conditions that render them so acceptable to this bird. There are some places where Herons are yet plentiful, especially those localities where the owner of the land has established or protected the nests, or where a wide expanse of wild uncultivated ground affords them a retreat. Only a few days ago I came suddenly on three of these beautiful birds fishing quietly in a creek, and permitting my approach within a few yards before they spread their wide wings for flight.

The food of the Heron consists mostly of fish and reptiles, but it will eat small mammalia, such as mice, or even water-rats. In the stomach of one of these birds were found seven small trout, a mouse and a thrush. Eels also are a favorite food of the Heron, but on account of their lithe bodies and active wriggings are not so easy to despatch as ordinary fish, and are accordingly taken on shore and banged against the ground until disabled. Dr. Neill, quoted by Yarrell, mentions a curious instance of the Heron feeding on young water-hens. "A large old willow-tree had fallen down into the pond, and at the extremity, which is partly sunk in the sludge and continues to vegetate, water-hens breed. The old cock Heron swims out to the nest and takes the young if he can. He has to swim ten or twelve feet, where the water is between two and three feet deep. His motion through the water is slow, but his carriage stately. I have seen him fell a rat at one blow on the back of the head, when the rat was munching at his dish of fish."

Like many other birds, the Heron is able to disgorge the food which it has swallowed, and resorts to this measure when it is chased by birds of prey while going home after a day's fishing.

While engaged in its search for food, the Heron stands on the water's edge, mostly with its feet or foot immersed, and there remains still, as if carved out of wood, with its neck retracted, and its head resting between the shoulders. In this attitude its sober plumage and total stillness render it very inconspicuous, and as it mostly prefers to stand under the shadow of a tree, bush, or bank, it cannot be seen except by a practised eye, in spite of its large size. The back view of the bird while thus standing partakes largely of the ludicrous, and reminds the observer of a large jargonelle pear with a long stalk stuck in the ground. Sometimes it likes to squat on its bent legs, the feet being pushed out in front, and the knees, or rather ankles, bent under its body. It generally suns itself in this position, partially spreading the wings and slightly shaking them. Usually it sits with the head resting on the shoulders; but if alarmed at any unexpected sound, it shuts its wings, stretches its neck to its utmost extent, and then presents a most singular aspect.

The flight of the Heron is grand and stately, for the wings are long and wide, and in spite of the long neck and counterbalancing legs, the bird moves through the air with a noble and rapid flight. It is curious to see a Heron pass directly overhead. The head, body, and legs are held in a line, stiff and immovable, and the gently waving wings carry the bird through the air with a rapidity that seems the effect of magic.

The long beak of the Heron is very sharp and dagger-like, and can be used with terrible force as an offensive weapon. The bird instinctively aims its blow at the eye of its adversary, and if incautiously handled is sure to deliver a stroke quick as lightning at the captor's eye. There seems to be some attraction in the eye, for a gentleman who turned a tame Heron into an aviary where five owls were kept, found next day that the Heron had totally blinded four owls and only left the fifth with a single eye. Even the game-cock can make nothing of the Heron, as has been seen in a short battle that raged between those birds. The cock made his first fly very boldly, but not being used to such long-legged foes, missed his stroke. Returning to the attack, he was met by a blow from the Heron which astonished him to such a degree that he declined further combat and ever afterwards avoided so unpleasant an antagonist. The beak of a species of Heron set upon a stick is used by some savage tribes as a spear.

The nest of the Heron is almost invariably built upon some elevated spot, mostly the top

of a large tree, but sometimes on rocks near the coast. It is a large and rather clumsy-looking edifice, made of sticks and lined with wool. The eggs are from four to five in number, and their color is pale green.

The general color of the Heron is delicate gray on the upper surface of the body, with the exception of the primaries, which are black, and the tail, which is deep slaty-gray. The head is very light gray, and the beautiful long plume is dark slaty-blue. The throat and neck are white, covered along the front with dashes of dark blue-gray, and at the junction of the neck with the breast the white feathers are much elongated, forming a pendent tuft. The breast and abdomen are grayish-white, covered with black streaks. The total length of the bird is about three feet. On the inside of the middle claw of each foot the horny substance is developed into a sort of shallow-toothed comb, the use of which is very problematical. This peculiarity runs through the genus, and several objects have been assigned to it, combing the plumage being the favorite theory, but clearly untenable on account of the shortness of the teeth.

THE GREAT WHITE HERON (*Ardea occidentalis*), called also WURDEMAN'S HERON. About this species there has long been a dispute among ornithologists, who differed in regard to its proper classification. But at last every doubt vanished, and the accounts given by Wilson and Audubon were considered as correct. The latter describes the bird "as the largest species of the Heron tribe hitherto found in the United States," and continues:—

"The Great White Heron is indeed remarkable, not only for its great size, but also for the pure white of its plumage at every period of its life. Writers who have subdivided the family, and stated that none of the true Herons are white, will doubtless be startled when they read this report.

"Immediately after my arrival at Indian Key, in Florida, I formed an acquaintance with Mr. Egan. He it was who first gave me notice of the species which forms the subject of this article. The next day after that of my arrival, he came in with two young birds alive, and another lying dead in a nest which he had cut off from a mangrove. You may imagine how delighted I was, when, at the very first glance, I felt assured that they were different from any that I had previously seen. The two living birds were of a beautiful white, slightly fringed with cream-color, remarkably fat and strong for their age, which the worthy pilot said could not be more than three weeks. The dead bird was quite putrid and much smaller. It looked as if it had accidentally been trampled to death by the parent birds ten or twelve days before, the body being almost flat and covered with filth. The nest, with the two live birds, was placed in the yard. The young Herons seemed quite unconcerned when a person approached them, although, on displaying one's hand to them, they at once endeavored to strike it with their bill. My Newfoundland dog, a well-trained and most sagacious animal, was whistled for and came up; on which the birds rose partially on their legs, ruffled all their feathers, spread their wings, opened their bills, and clicked their mandibles in great anger, but without attempting to leave the nest. I ordered the dog to go near them, but not to hurt them. They waited until he went within striking distance, when the largest suddenly hit him with its bill, and hung to his nose. Plato, however, took it all in good part, and merely brought the bird towards me, when I seized it by the wings, which made it let go its hold. It walked off as proudly as any of its tribe, and I was delighted to find it possessed of so much courage. These birds were left under the charge of Mrs. Egan, until I returned from my various excursions to the different islands along the coast.

"On the 26th of April I visited with my companions in a barge some Keys on which the Florida Cormorants were breeding in great numbers. As we were on the way, we observed two tall White Herons standing on their nests; but although I was anxious to procure them alive, an unfortunate shot from one of the party brought them to the water. They were, I was told, able to fly, but probably had never seen a man before. While searching that day for nests of the Zenaida Dove, we observed a young Heron of this species stalking

Testimonials to the "Tafeln" of Brehm's Thierleben.

The late CHARLES DARWIN writes:—"The illustrations are the best I ever saw in any work. I find it superfluous to enter here into particulars, as I already, in the 'Descent of Man,' have willingly and openly confessed how much I have profited by Mr. Brehm's book, and how highly I esteem it."

Sir JOHN LUBBOCK, Bart., D.C.L.:—"You have, I think, done good service in publishing them. They are certainly very admirable."
W. B. CARPENTER, M.D., LL.D., writes:—"I can quite endorse the favorable opinions already given by distinguished zoologists as to the high character of the illustrations generally."

Animate Creation.

WE have concluded to submit for public patronage a work with the above title, being a series of exquisite Engravings representing the ANIMAL WORLD, executed with great scientific accuracy, and accompanied by full Descriptive Text, written in popular terms, so as to delight and instruct the people. Anyone who has considered the subject must be at a loss to understand why an ILLUSTRATED NATURAL HISTORY, comprehensive and at the same time popular, has not before this been published in this country. Indeed any lover of animals who has visited the great museums and zoological gardens and has had access to books of engravings in the public libraries, could not fail to remark the wealth of material in existence devoted to this subject. Being confirmed in our conviction of the desirability of such a work, we laid under contribution the best existing authorities for the production of most perfect representations of all the more important living creatures, and among the artists whose delineations will delight the reader, we may mention Harrison Weir, Wolf, Coleman, Fr. Specht, and Mutzel. By far the majority of the engravings in these volumes are from drawings made from the *living* animals, many at the Zoological Society's Gardens in London, England.

We purpose that our patrons shall be aided and interested in their study by such an array of pictures as has never before embellished any Natural History. In numerous instances the engraving is printed in oil-colors, and this portion of the illustrations has been taken charge of by Messrs. L. Prang & Co., of Boston, who we believe rank foremost for high artistic results in this department of printing. These Oleographs were copied under the superintendence of Mr. Prang from the renowned "Tafeln" of "Brehm's Thierleben," so that they may be declared perfectly reliable.

We sought competent advice from various sources as to the most suitable text that should accompany this panorama of handsome Engravings. It was found impossible to embody all the present ideas of naturalists in a single work like this on account of the rapid advances and constant changes in their knowledge of, and habits of thought respecting, the Animal World. And it seemed to us correct that the true object of Zoology is not to arrange, to number, and to ticket animals in a formal inventory, but to inquire into their life-nature, and not simply to investigate the lifeless organism.

What do we know of "Man" from the dissecting-room? Is it not Man, the warrior, the statesman, the poet, etc., that we are interested in? With all veneration which attaches itself to those who are the accredited possessors of abstruse learning, their inordinate use of phraseology detracts too much, we fear, from the fascination that the study of the Animal World would otherwise yield, and as we are not content to have our work restricted to a favored few, we thought the task placed in our hands to be to keep the work free from a repellant vocabulary of conventional technicalities. Our endeavor has been to find an author whose work would be noted for its fund of anecdote and vitality rather than for merely anatomical and scientific presentation, and we arrived at the conclusion that we could not do better than avail ourselves of the Rev. J. G. Wood's comprehensive work—a work most popularly approved by speakers of the English language. It would be superfluous to say one word concerning the standard character of his book, from the pages of which old and young at the other side of the Atlantic have obtained so much instruction and rational amusement. Avoiding the lengthened dissertations and minute classifications of specialists, he presents to his readers in popular terms a complete treatise on the Animal Kingdom of all climes and countries. The one objection that could be urged against it was, that animal life in America might be treated more fully and American forms given more consideration. In order to obviate this drawback and to do full justice to the creatures of our own country, we secured the aid of Dr. J. B. HOLDER, of the American Museum of Natural History in New York, an undoubted American authority, who has adapted Wood's work to American wants and given prominence to American forms of Animal life.

The splendid work on Rodentia, by Allen, Coues, and others, will be fully consulted. The valuable work on North American Birds, by Baird, Brewer, and Ridgway, will be the guide in the treatment of birds. The late arrangement of the classification and nomenclature of North American Birds, by Mr. Ridgway, and the Committee on that subject of the Ornithologists' Union, will be utilized in full. The arrangement of Mammals will be after the latest classification by Professor Flower, of the Zoological Society of London. So that this will be the first popular Natural History worthy of the name that has made its appearance here, which gives due and full recognition to the animate world surrounding us.

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among the mangroves that bordered the Key on which we were, and immediately pursued it. Had you been looking on, good reader, you might have enjoyed a hearty laugh, although few of us could have joined you. Seven or eight persons were engaged in the pursuit of this single bird, which, with extended neck, wings, and legs, made off among the tangled trees at such a rate, that, anxious as I was to obtain it alive, I several times thought of shooting it. At length, however, it was caught, its bill was securely tied, its legs were drawn up, and fastened by a strong cord, and the poor thing was thus conveyed to Indian Key, and placed along with its kinsfolk. On seeing it, the latter immediately ran towards it with open bills, and greeted it with a most friendly welcome, passing their heads over and under its own in the most curious and, indeed, ludicrous manner. A bucketful of fish was thrown to them, which they swallowed in a few minutes. After a few days, they also ate pieces of pork-rind, cheese, and other substances.

“While sailing along the numerous islands that occur between Indian Key and Key West, I saw many birds of this species, some in pairs, some single, and others in flocks; but on no occasion did I succeed in getting within shot of one. Mr. Egan consoled me by saying that he knew some places beyond Key West where I certainly should obtain several, were we to spend a day and a night there for the purpose. Dr. Benjamin Strobel afterwards gave me a similar assurance. In the course of a week after reaching Key West, I, in fact, procured more than a dozen birds of different ages, as well as nests and eggs, and their habits were carefully examined by several of my party.

“At three o’clock, one morning, you might have seen Mr. Egan and myself, about eight miles from our harbor, paddling as silently as possible over some narrow and tortuous inlets, formed by the tides through a large flat and partially submerged Key. There we expected to find many White Herons; but our labor was for a long time almost hopeless, for, although other birds occurred, we had determined to shoot nothing but the Great White Heron, and none of that species came near us. At length, after six or seven hours of hard labor, a Heron flew right over our heads, and, to make sure of it, we both fired at once. The bird came down dead. It proved to be a female, which had either been sitting on her eggs, or had lately hatched her young, her belly being bare, and her plumage considerably worn. We now rested awhile, and breakfasted on some biscuit soaked in molasses and water, reposing under the shade of the mangroves, where the mosquitoes had a good opportunity of breaking their fast also. We went about from one Key to another, saw a great number of White Herons, and at length, towards night, reached the *Marion*, rather exhausted, and having a solitary bird. Mr. Egan and I had been most of the time devising schemes for procuring others with less trouble, a task which might easily have been accomplished a month before, when, as he said, the birds were ‘sitting hard.’ He asked if I would return that night at twelve o’clock to the last Key which we had visited. I mentioned the proposal to our worthy Captain, who, ever willing to do all in his power to oblige me, when the service did not require constant attendance on board, said that if I would go, he would accompany us in the gig. Our guns were soon cleaned, provisions and ammunition placed in the boats, and after supping we talked and laughed until the appointed time.

“‘Eight Bells’ made us bound on our feet, and off we pushed for the islands. The moon shone bright in the clear sky; but as the breeze had died away, we betook ourselves to our oars. The state of the tide was against us, and we had to drag our boats several miles over the soapy shallows; but at last we found ourselves in a deep channel beneath the hanging mangroves of a large Key, where we had observed the Herons retiring to roost the previous evening. There we lay quietly until daybreak. But the mosquitoes and sandflies! Reader, if you have not been in such a place, you cannot easily conceive the torments we endured for a whole hour, when it was absolutely necessary for us to remain perfectly motionless. At length day dawned, and the boats parted, to meet on the other side of the Key. Slowly and silently each advanced. A Heron sprung from its perch almost directly over our heads. Three barrels were discharged,—in vain; the bird flew on unscathed; the pilot and I had probably been too anxious. As the bird sped away, it croaked loudly, and the noise,

together with the reports of our guns, roused some hundreds of these Herons, which flew from the mangroves, and in the gray light appeared to sail over and around us like so many spectres. I almost despaired of procuring any more. The tide was now rising, and when we met with the other boat we were told that if we had waited until we could have shot at them while perched, we might have killed several; but that now we must remain until full tide, for the birds had gone to their feeding grounds.

"The boats parted again, and it was now arranged that whenever a Heron was killed, another shot should be fired exactly one minute after, by which each party would be made aware of the success of the other. Mr. Egan, pointing to a nest on which stood two small young birds, desired to be landed near it. I proceeded into a narrow bayou, where we remained quiet for about half an hour, when a Heron flew over us and was shot. It was a very fine old male. Before firing my signal shot, I heard a report from afar, and a little after mine was discharged I heard another shot, so I felt assured that two birds had been killed. When I reached the Captain's boat I found that he had in fact obtained two; but Mr. Egan had waited two hours in vain near the nest, for none of the old birds came up. We took him from his hiding-place, and brought the Herons along with us. It was now nearly high water. About a mile from us, more than a hundred Herons stood on a mud-bar up to their bellies. The pilot said that now was our best chance, as the tide would soon force them to fly, when they would come to rest on the trees. So we divided, each choosing his own place, and I went to the lowest end of the Key, where it was separated from another by a channel. I soon had the pleasure of observing all the Herons take to wing, one after another, in quick succession. I then heard my companions' guns, but no signal of success. Obtaining a good chance, as I thought, I fired at a remarkably large bird, and distinctly heard the shot strike it. The Heron merely croaked, and pursued its course. Not another bird came near enough to be shot at, although many had alighted on the neighboring Key, and stood perched like so many newly finished statues of the purest alabaster, forming a fine contrast to the deep blue sky. The boats joined us. Mr. Egan had one bird, the Captain another, and both looked at me with surprise. We now started for the next Key, where we expected to see more. When we had advanced several hundred yards along its low banks, we found the bird at which I had shot, lying with extended wings in the agonies of death. I was satisfied with the fruits of this day's excursion. On other occasions I procured fifteen more birds, and judging that number sufficient, I left the Herons to their occupations.

"This species is extremely shy. Sometimes they would rise when at the distance of half a mile from us, and fly quite out of sight. If pursued, they would return to the very Keys, or mud-flats, from which they had risen, and it was almost impossible to approach one while perched or standing in the water. Indeed, I have no doubt that half a dozen specimens of *Ardea herodias* could be procured for one of the present, in the same time and under similar circumstances.

"The Great White Heron is a constant resident on the Florida Keys, where it is found more abundant during the breeding season than anywhere else. They rarely go as far eastward as Cape Florida, and are not seen on the Tortugas, probably because these islands are destitute of mangroves. They begin to pair early in March, but many do not lay their eggs until the middle of April. Their courtships were represented to me as similar to those of the Great Blue Heron. Their nests are at times met with at considerable distances from each other, and although many are found on the same Keys, they are placed farther apart than those of the species just mentioned. They are seldom more than a few feet above high water-mark, which in the Floridas is so low, that they look as if only a yard or two above the roots of the trees. From twenty to thirty nests which I examined were thus placed. They were large, about three feet in diameter, formed of sticks of different sizes, but without any appearance of lining, and quite flat, being several inches thick. The eggs are always three, measure two inches and three-quarters in length, one inch and eight-twelfths in breadth, and have a rather thick shell, of a uniform plain light bluish-green color. Mr. Egan told me that incubation continues about thirty days, that both birds sit (the female, however, being most

assiduous), and with their legs stretched out before them in the same manner as the young when two or three weeks old. The latter, of which I saw several from ten days to a month old, were pure white, slightly tinged with cream color, and had no indications of a crest. Those which I carried to Charleston, and which were kept for more than a year, exhibited nothing of the kind. I am unable to say how long it is before they attain their full plumage.

"These Herons are sedate, quiet, and perhaps even less animated than the *A. herodias*. They walk majestically, with firmness and great elegance. Unlike the species first named, they flock at their feeding-grounds, sometimes a hundred or more being seen together; and what is still more remarkable is, that they betake themselves to the mud-flats or sand-bars at a distance from the Keys, on which they roost and breed. They seem, in so far as I could judge, to be diurnal, an opinion corroborated by the testimony of Mr. Egan, a person of great judgment, sagacity, and integrity. While on these banks they stand motionless, rarely moving towards their prey, but waiting until it comes near, when they strike it and swallow it alive, or when large, beat it on the water, or shake it violently, biting it severely all the while. They never leave their feeding-grounds until driven off by the tide, remaining until the water reaches their body. So wary are they that, although they may return to roost on the same Keys, they rarely alight on trees to which they have resorted before, and if repeatedly disturbed they do not return, for many weeks at least. When roosting, they generally stand on one foot, the other being drawn up, and, unlike the Ibises, are never seen lying flat on trees, where, however, they draw in their long necks, and place their heads under their wings.

"I was often surprised to see that while a flock was resting by day in the position just described, one or more stood with outstretched necks, keenly eyeing all around, now and then suddenly starting at the sight of a porpoise or shark in chase of some fish. The appearance of a man or a boat seemed to distract them; and yet I was told that nobody ever goes in pursuit of them. If surprised, they leave their perch with a rough croaking sound, and fly directly to a great distance, but never inland.

"The flight of the Great White Heron is firm, regular, and greatly protracted. They propel themselves by regular, slow flaps, the head being drawn in after they have proceeded a few yards, and their legs extended behind, as is the case with all the other Herons. They also, now and then, rise high in the air, where they sail in wide circles, and they never alight without performing this circling flight, unless when going to feeding-grounds on which other individuals have already settled. It is truly surprising that a bird of so powerful a flight never visits Georgia or the Carolinas, nor goes to the mainland. When you see them about the middle of the day on their feeding-grounds, they 'loom' to about double their size, and present a singular appearance. It is difficult to kill them unless with buck-shot, which we found ourselves obliged to use.

"When I left Key West, on our return towards Charleston, I took with me two young birds that had been consigned to the care of my friend, Dr. B. Strobel, who assured me that they devoured more than their weight of food per day. I had also two young birds of the *Ardea herodias* alive. After bringing them on board, I placed them all together in a very large coop; but was soon obliged to separate the two species, for the white birds would not be reconciled to the blue, which they would have killed. While the former had the privilege of the deck for a few minutes, they struck at the smaller species, such as the young of *Ardea rufescens* and *A. ludoviciana*, some of which they instantly killed and swallowed entire, although they were abundantly fed on the flesh of green turtles. None of the sailors succeeded in making friends with them.

"On reaching Indian Key, I found those which had been left with Mrs. Egan in excellent health, and much increased in size; but, to my surprise, observed that their bills were much broken, which she assured me had been caused by the great force with which they struck at the fishes thrown to them on the rocks of their inclosure,—a statement which I found confirmed by my own observation in the course of the day. It was almost as difficult to catch them in the yard as if they had never seen a man before, and we were obliged to tie their bills fast, to avoid being wounded by them while carrying them on board. They thrived well, and

never manifested the least animosity towards each other. One of them which accidentally walked before the coops in which the Blue Herons were, thrust its bill between the bars, and transfixed the head of one of these birds, so that it was instantaneously killed.

"When we arrived at Charleston, four of them were still alive. They were taken to my friend, John Bachman, who was glad to see them. He kept a pair, and offered the other to our mutual friend, Dr. Samuel Wilson, who accepted them, but soon afterwards gave them to Dr. Gibbes, of Columbia College, merely because they had killed a number of ducks. My friend Bachman kept two of these birds for many months; but it was difficult for him to procure fish enough for them, as they swallowed a bucketful of mullets in a few minutes, each devouring about a gallon of these fishes. They betook themselves to roosting in a beautiful arbor in his garden, where at night they looked, with their pure white plumage, like beings of another world. It is a curious fact, that the points of their bills, of which an inch at least had been broken, grew again, and were as regularly shaped at the end of six months as if nothing had happened to them. In the evening, or early in the morning, they would frequently set, like pointer dogs, at moths which hovered over the flowers, and with a well-directed stroke of their bill seize the fluttering insect and instantly swallow it. On many occasions, they also struck at chickens, grown fowls, and ducks, which they would tear up and devour. Once, a cat which was asleep in the sunshine, on the wooden steps of the veranda, was pinned through the body to the boards, and killed by one of them. At last, they began to pursue the younger children of my worthy friend, who therefore ordered them to be killed. One of them was beautifully mounted by my assistant, Mr. Henry Ward, and is now in the museum of Charleston. Dr. Gibbes was obliged to treat his in the same manner, and I afterwards saw one of them in his collection.

"Mr. Egan kept for about a year one of these birds, which he raised from the nest, and which, when well grown, was allowed to ramble along the shores of Indian Key in quest of food. One of the wings had been cut, and the bird was known to all the resident inhabitants, but was at last shot by some Indian hunter, who had gone there to dispose of a collection of sea-shells.

"Some of the Herons feed on the berries of certain trees during the latter part of autumn and the beginning of winter. Dr. B. Strobel observed the Night Heron eating those of the 'Gobolimbo,' late in September, at Key West."

THE GREAT BLUE HERON (*Ardea herodias*) is a very familiar bird in the eastern United States. It is common to the whole continent, south to Guatemala and the West Indies.

It breeds in all these regions, and winters in the South. It is only equalled in its wide distribution on this continent by the Bittern. This is one of the handsomest, most striking, majestic-looking birds in America. In the high inland portions of the country, this Heron is not often seen, but is a constant inhabitant of the Atlantic coast. In the lower parts of New Jersey it breeds in considerable numbers. The breeding-places are usually gloomy cedar swamps, where, upon the tallest trees, the nests are constructed. The Herons generally breed many years in succession in the same places.

The principal food of this Heron is fish, for which he watches with great patience. His long, lance-shaped bill quickly transfixes his game when opportunity offers. Wilson says of him: "In our vast fens and meadows this stately bird roams at pleasure, feasting on the never-failing magazines of frogs, fishes, insects, etc., with which they abound, and of which he, probably, considers himself the sole lord and proprietor. I have several times seen the bald eagle attack him, and tease him, but whether for sport or to make him disgorge, I do not know.

"The common Heron of Europe very much resembles this bird, which might, as usual, have probably been ranked as the original stock, of which the present was a mere degenerated species, were it not that the American is greatly superior in size and weight to the European, the former measuring four feet four inches, and weight of upwards of seven pounds; the latter, three feet three inches, and weighing rarely more than four pounds. Yet, with the

exception of size, and the rust-colored thighs of the present, they are extremely alike. The common Heron of Europe is not, however, an inhabitant of the United States." Since the days of Wilson, it has been ascertained that the European Heron (*Ardea cinerea*) is occasionally a straggler in this country, and, consequently, is enumerated with birds of North America. The Great Heron does not assume the full plumage during the first season, nor until the summer of the second. When in complete plumage, the sexes are exactly alike.

The length of this Heron is four feet four inches, from bill to tail, and to bottom of the feet, five feet four inches. The extent of wings, six feet. The bill is eight inches long.

THE SNOWY HERON (*Garzetta candidissima*) is in some respects more attractive than the preceding. It is much smaller, but its graceful attitude, and delicate, flowing plumes render it exceedingly beautiful, its plumage being wholly white. It is properly a southern bird, peculiar to America, yet, as other species, a straggler now and again finds its way northward, even as far as Massachusetts. It inhabits Mexico, West Indies, and Central and South America. It resembles the "Little Egret" of Europe. The plumes and larger size of the American bird distinguish it. Like most of its tribe, this Heron prefers the salt marshes, near its breeding-places, where, also, it can quickly reach its accustomed feeding-grounds. For this reason, it seldom goes far inland.

The length of this species is two feet one inch; extent of wings, three feet two inches. The sexes are alike in size and plumage.

PEALE'S EGRET (*Dichromanassa rufa*), called also Reddish Egret, is another species, having in the breeding season a pure white plumage, and at others a red-colored one.

GREEN HERON (*Butorides virescens*). This Heron is found throughout the United States generally, breeding throughout and wintering in the South. It ranges from Canada West to Venezuela and the West Indies. It is only noticed in the West in the southern and eastern portions of the Missouri region.

This bird is a common one in the Eastern States, but is not frequently seen, as it frequents the most secluded swamps, pools, morasses, where its most favorite food is to be found.

When alarmed, the Green Heron rises with a hollow, guttural scream; does not fly far, but usually alights on some old stump, tree, or fence, and looks about with extended neck, though sometimes this is drawn in so that his head seems to rest upon his breast. As he walks along the fence, or stands gazing at you with outstretched neck, he has the habit of jerking his tail. He sometimes flies high, with doubled neck and legs extended behind, flapping the wings smartly, and travelling with great expedition. During the whole summer, until late in autumn, these birds are seen in our marshes, but never in winter. Unlike many of the Herons, this species is found in the interior, wherever there is water. It is eighteen inches long, and twenty-five in extent of wing. The prevailing color is green. Few groups of birds have such varied coloration as the Herons. The sexes are alike in markings and size.

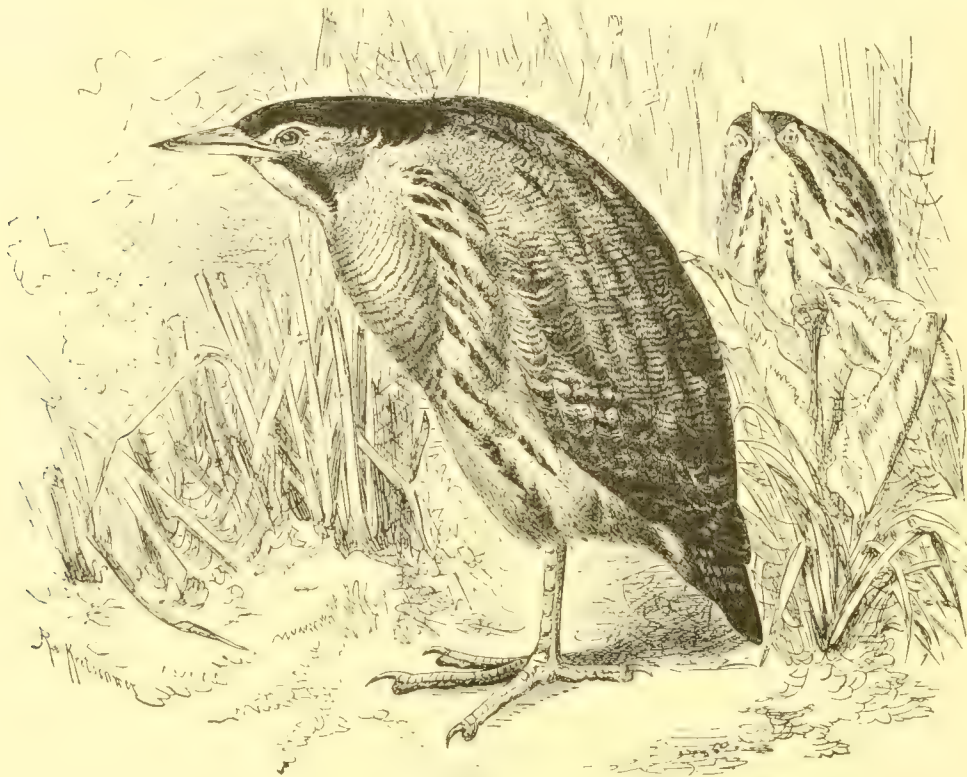
THE BITTERN is now seldom seen in this country, partly because it is a rare bird and becoming scarcer almost yearly, and partly because its habits are nocturnal, and it sits all day in the thickest reeds or other aquatic vegetation. The marshy grounds of Essex seem to be the spots most favored by this bird at the present day, although specimens are annually killed in various parts of the country.

In habits and food, the Bittern resembles the heron, except that it feeds by night instead of by day. Like that bird, it uses its long sharp beak as a weapon of offence, and chooses the eye of its adversary as the point at which to aim. The feet and legs are also powerful weapons, and when disabled from flight, the Bittern will fling itself on its back, and fight desperately with foot and bill.

The nest of the Bittern is placed on the ground near water, and concealed among the rank

vegetation that is found in such localities. It is made of sticks and reeds, and generally contains about four or five pale-brown eggs. The voice of the Bittern varies with the season of year. Usually it is a sharp harsh cry uttered on rising, but in the breeding season the bird utters a loud booming cry that can be heard at a great distance.

The general color of this fine bird is rich brownish-buff, covered with irregular streaks and mottlings of black, dark brown, gray, and chestnut. The top of the head is black with a gloss of bronze; the cheeks are buff, and the chin white tinged with buff. Down the front of the neck the feathers are marked with bold longitudinal dashes of blackish and reddish-brown, and the feathers of the breast are dark brown broadly edged with buff. The under surface of the body is buff streaked with brown, the beak is greenish-yellow, and the feet and legs are



BITTERN.—*Ardea stellaris*.

green. In total length the Bittern measures about thirty inches. Several species of herons have been seen in Europe, nine being mentioned by Yarrell, including one species of Egret, two Bitterns, and a Night Heron.

THE AMERICAN BITTERN (*Botaurus lentiginosus*) inhabits the entire temperate North America, Cuba, and southward to Guatemala. It breeds chiefly in the middle districts northward, wintering southward. It is regularly migratory; and accidental in Europe. Dr. Coues notices an extraordinary variation in size of this species. Individuals measured from 23 to 34 inches, and 32 to 43 in extent of wing. The Bittern is somewhat familiar, but its habits are not well known. It is peculiar in not assembling in communities like the Herons, and its nest is usually placed on the ground. Samuels says: "It breeds in communities, sometimes as many as a dozen pairs nesting within the area of a few rods. The nests are placed on low bushes, or tufts of grass." It seems evident that this bird's history has heretofore been little known, as in several other respects recent accounts are diametrically opposite to those of Audubon and other contemporary authors and observers. For example, the nesting-places are said by Samuels to be continuously inhabited for many years, while Audubon states the opposite.

The "booming" of the Bittern is regarded as a myth. No such sound as can be understood as similar is uttered by it. It has a hollow croak, when alarmed. Audubon likens it to a "hoarse croaking, as if the throat were filled with water." Nuttall more successfully likens it to *pump-ă-gah*. Mr. Samuel's renders it as follows: "In the mating season, and during the first part of the period of incubation, the male has a peculiar note, that almost exactly resembles the stroke of a mallet on a stake; something like the syllables *chunk-a-lunk-chunk*, *quank-chunk-a-lunk-chunk*. I have often, when in the forests of Northern Maine, been deceived by this note into believing that some woodman or settler was in my neighborhood, and discovered my mistake after toiling a mile or so through swamps." Besides this peculiar note, the bird has another, its ordinary cry. This is a single, abrupt, explosive syllable, something like *quark*, or *hawk*, delivered with a rough, guttural intonation. Ordinarily the Bittern is a silent bird. It is migratory, and, excepting the Blue Heron, no bird is more extensively dispersed. It is wild, shy, and somewhat solitary. When disturbed, he gives a vigorous spring, croaks at the moment in a manner highly expressive of disgust, and flies off as fast as he can, though in rather a loose, lumbering way. For some distance he flaps heavily with dangling legs and outstretched neck.

LEAST BITTERN (*Ardetta exilis*). Inhabits the United States and British provinces, Cuba, Jamaica, Central, and possibly South America. It breeds throughout its range in the States, and winters in the South. It is not anywhere abundant, though very generally distributed. It inhabits reedy swamps, and is regularly migratory, passing northward in April, and returning in September. It is rather more numerous in the Gulf States than elsewhere. Unlike the other species of Herons, it does not gather in communities to breed, but is oftener found in single pairs, or, at most, three or four. It is the smallest known species of the whole tribe. It rarely visits salt meadows. Wilson says it is an uncommon bird to the sea-coast peoples of New Jersey, but a few breed near Philadelphia, in the fresh meadows of the Schuylkill River. When alarmed, it seldom flies far, but takes shelter among the reeds, seldom being seen, as it feeds at night. Its length is twelve inches, and sixteen inches in extent of wing. The eyes are bright yellow, which gives the bird a bright look. The sexes are nearly alike in color. Audubon says: "The nest is sometimes placed upon the ground, amid the rankest grasses, but more frequently it is attached to the stems, several inches above it. It is flat, composed of dried or rotten weeds. In two instances, I found the nests of the Least Bittern about three feet from the ground, in a thick cluster of smilax and other briary plants. In the first, two nests were placed in the same bush, within a few yards of each other. In the other instance, there was only one nest of this bird, but several of the Boat-tailed Grackle, and one of the Green Heron, the occupants of all of which seemed to be on friendly terms. When startled from the nest, the old birds emit a few notes, resembling the syllable *qua*, alight a few yards off, and watch all your movements. If you go towards them you may sometimes take the female in your hand, but rarely the male, who generally flies off, or makes his way through the woods. Like the other Herons, its food is small reptiles, fishes, insects, etc. Often shrews and field mice are found in their stomachs. The eggs are three to five in number, resembling pigeons' eggs."

THE BLACK-CROWNED NIGHT HERON (*Nyctiardea grisea navia*) inhabits the British provinces, breeds abundantly in New England, winters in the South and beyond. It is also found in the West Indies and Mexico. The Night Herons derive their name from their nocturnal habits. Like other species, this bird prefers the solitary swamps for breeding and feeding places, where numbers of them build in proximity. At dusk, the Night Herons, called also *Qua Birds*, from their peculiar cry, make wing for the marshes, or beaches, where they stand motionless in watch for their game—small reptiles or fishes. These they capture by darting forth their sharp, long bills, which transfix the luckless toads or fishes. Wilson says: "At this hour, also, all the nurseries of the swamp are emptied of their inhabitants, who disperse about the marshes and along the ditches and river shore in quest of food. Some of these breeding-places have been occupied, every spring and summer, from time immemorial,

by from eighty to one hundred pairs of *Qua Birds*. In places where the cedars have been cut down for sale, the birds have merely removed to another quarter of the swamp, but when personally attacked, long teased, and plundered, they have been known to remove from an



DAY AND NIGHT HERONS.—*Ardea nycticorax*.

ancient breeding-place in a body, no one knew where. Such was the case with one on the Delaware, which, having been repeatedly attacked and plundered by a body of crows, after several severe *rencontres*, they suddenly disappeared, and abandoned the place. On the

cedars near Cape May are several of these breeding-places, intermixed with those of the Little Egret, Green Bittern, and Blue Heron. The nests are built entirely of sticks, in considerable quantities, with frequently three or four nests on the same tree. On entering the swamp in the neighborhood of one of these breeding-places, the noise of the old and the young would almost induce one to suppose that two or three hundred Indians were choking or throttling each other. The instant an intruder is discovered, the whole rise in the air in silence, and remove to the tops of the trees, in another part of the wood, while parties of from eight to ten make occasional circuits over the spot to see what is going on.

"Though it is probable that those birds do not see well during the day, yet their faculty of hearing must be exquisite, as it is almost impossible, with all the precautions one can use, to penetrate near their residence without being discovered. Several species of hawks hover around, making an occasional sweep among the young, and the bald eagle himself has been seen reconnoitering near the spot, probably with the same design." The sexes are so alike in color of plumage they can scarcely be distinguished.

The length of the Night Heron, as this bird is called in the Northern States, is two feet four inches; the extent of wing is four feet; bill, four and a quarter inches. The iris is a brilliant blood-red. The eye is large, and gives a striking, beautiful appearance to the bird. This bird breeds in great numbers in the vicinity of New Orleans.

THE WHITE-CROWNED NIGHT HERON (*Nyctherodias violaceus*) is a Southern species, quite common in the Gulf States, but not seen north of Pennsylvania. It is about the size of the preceding, and has much plainer plumage.

THE NANKEEN NIGHT HERON is a native of Australia, and is thus described by Mr. Gould:—

"This beautiful species is universally dispersed over the continent of Australia, but is far less abundant over the western than over the eastern coast. In the summer latitudes it is only a summer visitant, arriving in New South Wales and South Australia in August and September, and retiring again in February. As its name implies, it is nocturnal in its habits, and from its frequenting swamps, inlets of the sea, the sedgy banks of rivers, and other secluded situations, it is seldom seen. On the approach of morning it retires to the forests, and perches among the branches of large trees, where, shrouded from the heat of the sun, it sleeps the whole day, and when once discovered is easily taken, as it seldom moves unless shot at, or driven from its perch by some other means, and when forced to quit its perch, it merely flies a short distance and again alights. Its flight is slow and flapping, and during its passage through the air the head is drawn back between the shoulders and the legs are stretched out backwards after the manner of true Herons. When perched upon the trees or resting on the ground, it exhibits none of the grace and elegance of those birds, its short neck resting on the shoulders.

"When impelled by hunger to search for a supply of food it naturally becomes more animated, and its actions more active and prying; the varied nature of its food, in fact, demands some degree of activity—fishes, water-lizards, crabs, frogs, leeches, and insects being all partaken of with equal avidity. It breeds in the months of November and December, and generally in companies like the true Herons; the favorite localities being the neighborhood of swampy districts, where an abundant supply of food is to be procured; the branches of large trees, points of shelving rocks, and caverns, are equally chosen as a site for the nest, which is rather large and flat, and generally composed of crooked sticks loosely interwoven.

"The eggs, which are usually three in number, are of a pale-green color, and average two inches and five-eighths in length by one inch and a half in breadth. So little difference exists in the coloring of the sexes, that it is extremely difficult to distinguish the male from the female, and never with certainty, unless dissection be resorted to; both have the three beautiful elongated occipital plumes, the use of which except for ornament is not easily imagined. The young, on the contrary, differ so greatly from the adult, that they might readily be regarded as a distinct species."

The general color of the adult bird is a rich cinnamon-brown, the top of the head and nape of the neck are black, and the head-plumes, cheeks, a stripe over the eye, and whole of the lower surface are pure white, melting softly into cinnamon-brown on the sides of the neck. The bare skin round the eye is greenish-yellow, and the eyes orange. The bill is black, with a little yellow at the tip or on the lower mandible, and the legs and feet are rich yellow. As is frequently the case among the feathered tribes, the plumage of the young bird, instead of being adorned with broad uniform tints, is richly mottled and streaked, the upper surface being buff streaked with deep brown, and the under surface ochry white diversified with a dark stripe down the centre of each feather. The primaries of the wings and quill-feathers of the tail are very dark chestnut at their base, deepening into black near their extremities, which are buff-white.

BOAT-BILL.—*Cancroma cochlearea*.

THE very remarkable BOAT-BILL HERON inhabits Southern America, and is tolerably plentiful in Guiana and Brazil.

It derives its popular name from the singular form of its beak, which, although it really preserves the characteristics of the Heron's bill, is modified after a rather strange fashion, probably for the purpose of aiding it in its search after food. Generally the beak is straight, slender, and sharp; but in this case, although it retains the same amount of substance, its shape is materially altered. Both mandibles are much shortened, rather flattened, and greatly hollowed, so as to assume the aspect of a pair of boats laid upon each other gunwale to gunwale, the keel being well represented by the corresponding portion of the upper mandible.

This bird is generally found near water, haunting the rivers, marshes, and swamps, where it finds ample supplies of food. Sometimes it traverses the sea-coast, picking up the various

crustacea that are to be found at low water, but its usual places of resort are rivers and inland swamps. Its mode of angling is not unlike that of the kingfisher, as the Boat-bill perches upon some branch that overhangs the water, and thence pounces upon the prey below. It is not a large bird, the body being hardly bigger than that of a common duck, and the legs are rather short in proportion to the size of the body.

The adult male bird has the top of the head decorated with a long and full plume of jetty black feathers, pointed and drooping over the back. In the female the elongated feathers are wanting. The tuft or plume of the neck and breast is grayish-white. The feathers of the back are elongated, and their color is gray with occasionally a wash of rusty red; there is also a patch of the same hue, but of a deeper tone, upon the middle of the under surface. The tail is white and the sides black. The bill is blackish-brown, and the legs nearly of the same color, but not quite so dark. Specimens of this bird have been kept in captivity, and were fed principally upon fish.



SPOONBILL.—*Platalea leucorodia*.

THE well-known SPOONBILL affords another instance of the endless variety of forms assumed by the same organ under different conditions; both the beak and the windpipe being modified in a very remarkable manner.

The Spoonbill has a very wide range of country, being spread over the greater part of Europe and Asia, and inhabiting a portion of Africa. Like the bird to which it is closely allied, this species is one of the waders, frequenting the waters, and obtaining a subsistence from the fish, reptiles, and smaller aquatic inhabitants, which it captures in the broad, spoon-

like extremity of its beak. It is also fond of frequenting the sea-shore, where it finds a bountiful supply of food along the edge of the waves and in the little pools that are left by the retiring waters, where shrimps, crabs, sand-hoppers, and similar animals are crowded closely together as the water sinks through the sand. The bird also eats some vegetable substances, such as the roots of aquatic herbage, and when in confinement will feed upon almost any kind of animal or vegetable matter, providing it be soft and moist. The beak of an adult Spoonbill is about eight inches in length, very much flattened, and is channelled and grooved at the base. In some countries the beak is taken from the bird, scraped very thin, and polished, and is then used as a spoon, and is thought a valuable article, being sometimes set in silver.

It has often been found in northern countries, but is now there very scarce, owing to the increasing drainage of marshy soil. The breeding-places of the Spoonbill are usually open trees, the banks of rivers, or in little islands and tufts of aquatic herbage. In the latter cases the nest is rather large, and is made of reeds piled loosely together, and set on a foundation of water-weeds heaped sufficiently high to keep the eggs from the wet. There is no lining to the nest. The eggs are generally four in number, and their color is grayish-white, spotted with rather pale rusty brown.

The Spoonbill seems to have no power of modulating its voice, a peculiarity which is explained by the structure of the windpipe. Upon dissecting one of these birds, the windpipe is seen to be bent into a kind of S-like shape, the coils not crossing, but just applied to each other, and held in their place by a thin membrane. At the junction of the windpipe with the bronchial tubes that communicate with the lungs, there is none of the bony structure nor the muscular development by which the modulations of the voice are effected, and which are found so strongly developed in the singing and talking birds. This curious formation does not exist in the very young bird, and only assumes its perfect form when the Spoonbill has arrived at full age.

The color of the adult bird is pure white, with the slightest imaginable tinge of soft pink. At the junction of the neck with the breast there is a band of buffy yellow. The naked skin on the throat is yellow, the eyes are red, the legs and feet black, and the bill yellow at the expanded portion, and black for the remainder of its length. The total length of the male bird is about thirty-two inches, but the female is not quite so large, and her crest is smaller than that of the other sex. There are six or seven known species of these curious birds.

ROSEATE SPOONBILL (*Ajaja rosea*). This beautiful and singular bird inhabits from Georgia and the Gulf States to South America. It is also seen up the Mississippi occasionally. Mr. Wilson's specimen came from Natchez. It measures two feet six inches in length, and nearly four feet in extent of wings. The bill is six inches and a half in length, and is flat horizontally, resembling the body of a violin. The delicate rose-colored and pink shadings of the plumage are very beautiful.

THE STORKS.

THE STORK is another of the birds which now seldom make their appearance in such inhospitable regions, where food is scarce and guns are many.

It is sufficiently common in many parts of Europe, whither it migrates yearly from its winter quarters in Africa, makes its nest and rears its young. In most countries it is rigidly protected by common consent; partly on account of the service which it renders in the destruction of noisome reptiles and unpleasant offal, and partly because it is surrounded with a kind of halo of romantic traditions handed down from time immemorial to successive generations.

The Stork is not slow in taking advantage of its position, and attaches itself to man and his habitations, building its huge nest on the top of his house, and walking about in his streets as familiarly as if it had made them. It especially parades about the fish-markets, where it finds no lack of subsistence in the offal; and in Holland, where it is very common, it does good service by destroying the frogs and other reptiles, which would be likely to become a public nuisance unless kept down by the powerful aid of this bird.

The habits of the Stork are well told by Colonel Montague in his account of a Black Stork (*Ciconia nigra*) domesticated by him :—

“Like the white Stork, it frequently rests upon one leg, and if alarmed, especially by the approach of a dog, it makes a considerable noise by reiterated snappings of the bill, similar to that species. It soon became docile, and would follow its feeder for its favorite morsel, an eel. When very hungry, it crouches, resting the whole length of the legs upon the ground, and suppliantly seems to solicit food by nodding the head, flapping its unwieldy pinions, and forcibly blowing the air from the lungs with audible expirations. Whenever it is approached, the expulsion of air, accompanied by repeated noddings of the head, is provoked.

“The bird is of a mild and peaceful disposition, very unlike many of its congeners, for it never makes use of its formidable bill offensively against any of the companions of its prison, and even submits peaceably to be taken up without much struggle. From the manner in which it is observed to search the grass with its bill, there can be no doubt that reptiles form part of its natural food ; even mice, worms, and the larger insects probably add to its usual repast. When searching in thick grass or in the mud for its prey, the bill is kept partly open ; by this means I have observed it take eels in a pond with great dexterity ; no spear in common use for taking that fish can more effectually secure it between its fangs than the grasp of the Stork’s mandibles. A small eel has no chance of escaping when once roused from its lurking-place.

“But the Stork does not gorge its prey instantly, like the cormorant ; on the contrary, it retires to the margin of the pond, and there disables its prey by shaking and beating it with its bill before it ventures to swallow it. I never observed this bird attempt to swim, but it will wade up to the belly and occasionally thrust the whole head and neck under water after its prey. It prefers an elevated spot on which to repose ; an old, ivy-bound weeping-willow that lies prostrate over the pond is usually resorted to for that purpose. In this quiescent state the neck is much shortened by resting the hinder part of the head on the back, and the bill rests on the fore part of the neck, over which the feathers flow partly so as to conceal it, making a very singular appearance.”

The Stork is fond of making its nest upon some elevated spot, such as the top of a house, a chimney, or a church spire ; and in the ruined cities of the East, almost every solitary pillar has its Stork’s nest upon the summit. The nest is little more than a heterogeneous bundle of sticks, reeds, and similar substances heaped together, and with a slight depression for the eggs. These are usually three or four in number, and their color is white with a tinge of buff. The young are puffy, big-beaked, long-necked, ungainly little things, and remain in their lofty cradle until they are well fledged and able to achieve the downward flight. The mother-bird is exceedingly devoted to her young, and there are many well-known tales of this parental affection. On account, probably, of this trait of character, the Stork is looked upon with a feeling of reverence in many countries, and is encouraged to build its nest on the houses, the inhabitant thinking that the bird will bring him good fortune.

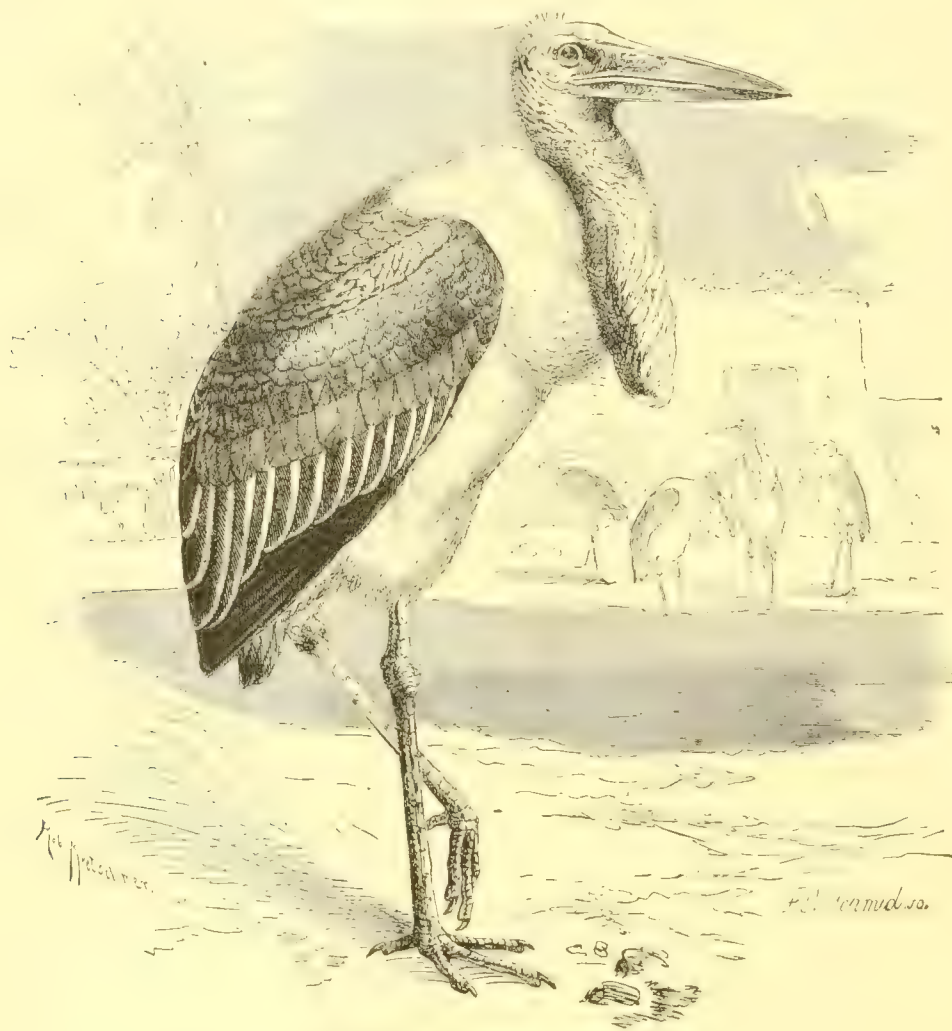
The flight of the Stork is extremely high, and the birds fly in large flocks, in some instances numbering many thousand individuals. So great an aerial assembly of such large birds necessarily causes a loud and peculiar rushing sound of huge wings ; but except an occasional sharp clattering of beaks, the flocks make no noise. Like many of the long-legged birds, the Stork, when resting, stands on one leg, its neck doubled back, and its head resting on its shoulder.

The color of the adult Stork is pure white, with the exception of the quill-feathers of the wings, the scapularies and greater wing-coverts, which are black. The skin round the eye is black, the eyes are brown, and the beak, legs, and toes red. The length of the full-grown bird is about three feet six inches, and when erect, its head is about four feet from the ground.

SOME remarkable members of this group now come before our notice. The first is the well-known ADJUTANT, or ARGALA of India, the former name being derived from its habit of frequenting the parade-grounds.

This fine bird is notable for the enormous size of the beak, which is capable of seizing and swallowing objects of considerable size, a full-grown cat, a fowl, or a leg of mutton being

engulfed without any apparent difficulty. The Adjutant is a most useful bird in the countries which it inhabits, and is protected with the utmost care, as it thoroughly cleans the streets and public places of the various offal which is flung carelessly in the way, and would be left to putrefy but for the constant services of the Adjutant and creatures of similar habits. The vulture is valuable in devouring dead animals of a large size, as its beak is capable of tearing the hide and flesh from the bones, which are in their turn the prey of the hyena; but the Adjutant is chiefly important in swallowing the refuse of slaughtered animals, and killing snakes and other unpleasant reptiles. It is remarkable that the bird, though very far removed from the vulture, should have a decidedly vulturine aspect; its nearly naked head and neck adding greatly to the semblance.



ADJUTANT — *Leptoptilus crumenifer*.

The attitudes assumed by the Adjutant are varied, and generally partake of the grotesque. It has a curious habit of airing itself on a hot day, by standing still with the huge beak drooping towards the ground and nearly touching the earth, and its wings stuck out straight from the body. In this odd attitude it will remain for a considerable time immovable, as if carved in stone, and has about as grotesque an appearance as can well be imagined. Sometimes it squats on the ground with its legs tucked under its body, and sits looking about it with a superb air of dignity as of an enthroned monarch. Sometimes it stalks menacingly along, its neck stretched to the utmost, its head thrust forward, and its huge bill open, looking a most formidable creature.

It is, however, a cowardly kind of bird, and its assumption of valor is of the most flimsy description, for it will run away from a child if boldly faced, and would as soon face a bantam

cock as a tiger. Some enemies, however, from which man would flee, are attacked and killed by the Adjutant, which thus redeems himself from a wholly pusillanimous character. Serpents fall an easy prey to this bird, which has a fashion of knocking them over before they can strike, and after battering them to death swallows them whole. During the inundations the Adjutants are invaluable, as they follow the course of the rising waters, and make prey of the reptiles that are driven from their holes by the floods.

The capacity of the Adjutant's stomach seems to be almost unlimited, and its digestion is so rapid that it can consume a very large amount of food daily. It will swallow a whole joint of meat, or even so impracticable a subject as a tortoise, its stomach being endowed with the power of dissolving all the soft and digestible parts, and ejecting the indigestible, such as the shell and bones.

It is easily tamed, and soon attaches itself to a kind owner; sometimes, indeed, becoming absolutely troublesome in its familiarity. Mr. Smeathman mentions an instance where one of these birds was domesticated, and was accustomed to stand behind its master's chair at dinner-time, and take its share of the meal. It was, however, an incorrigible thief, and was always looking for some opportunity of stealing the provisions, so that the servants were forced to keep watch with sticks over the table. In spite of their vigilance it was often too quick for them; and once it snatched a boiled fowl off the dish and swallowed it on the spot.

The exquisitely fine and flowing plumes, termed "Marabou feathers," are obtained from the Adjutant and a kindred species, the Marabou of Africa (*Leptoptilos marabou*).

The general color of the Adjutant is delicate ashen-gray above and white beneath. The great head and proportionately large neck are almost bare of covering, having only a scanty supply of down instead of feathers. From the lower part of the neck hangs a kind of dewlap, which can be inflated at the will of the bird, but generally hangs loose and flabby.

THE JABIRUS rank among the giants of the feathered race. They are very similar in general form to the marabous, but may be distinguished from them by the form of bill, which slightly turns up towards the extremity. The head and part of the neck are also nearly destitute of feathers. There are very few species known, and they all seem to have similar habits; haunting the borders of lakes, marshy grounds, and the banks of rivers, where they find abundance of the fish and aquatic reptiles on which they feed. Of one species, the AUSTRALIAN JABIRU, Dr. Bennett has treated so fully and with such graphic powers of narration, that a condensation of his interesting account must be transferred to these pages. The whole narrative may be found in his "Gatherings of a Naturalist in Australia." One of these birds was taken at Port Macquarie and brought safely to Dr. Bennett's home:—

"The first evening it was at my house, it walked into the hall, gazed at the gas-lamps which had just been lighted, and then proceeded to walk upstairs seeking for a roosting-place; but not liking the ascent came quickly down again, returned into the yard, and afterwards went to roost in the coach-house between the carriages, to which place it now retires regularly every evening soon after dark. It may always be found in that part of the yard where the sun is shining, and with its face invariably directed towards it. When hungry it seeks for the cook, who usually feeds it; and if she has neglected its food, looks into the kitchen as if to remind her of her neglect, and waits quietly, but with a searching eye, during the time the meat is cutting up, until it is fed.

"It is amusing to observe this bird catch flies; it remains very quiet as if asleep, and on a fly passing, it is snapped up in an instant. The only time I observed any manifestation of anger in it, was when the mooruks were introduced into the yard where it was parading about. These rapid, fussy, noisy birds, running about its range, excited its indignation; for on their coming near, it slightly elevated the brilliant feathers of the head, its eyes became very bright, it ruffled its feathers, and chattered its mandibles, as if about to try their sword-like edge upon the intruding mooruks, but the anger subsided without further demonstration than an occasional flapping of its powerful wings. One day, however, on one of the mooruks approaching too near him, he seized it by the neck with his mandibles, on which the mooruk ran away and did not appear in any way injured.

"When he was first placed in the yard where some poultry were kept, he stared at the fowls, and they ran away on his approach, although he did not make the least attempt to molest them ; and when striding round the yard, all the poultry fled before him, although it did not appear to be an intentional chase on his part.

"There happened to be a pugnacious fussy little bantam-cock in the yard, who would not permit the intrusion of any stranger, and on seeing the Jabiru, he strutted up with expanded and fluttering wings and ruffled feathers in a violent state of excitement, cackling and screaming most vehemently, and making efforts as energetic as so diminutive a bird was capable of, to frighten and drive him out of the yard. The Jabiru with his keen bright eyes regarded the little fluttering object with cool contempt, and walked about as before ; the bantam followed. At last the Jabiru turned and strode after the consequential little urchin as if to crush him under his feet ; when the bantam, seeing matters take this serious turn, made off as fast as possible, like all little bullies, and did not again venture to attack so formidable an opponent. In a few days the Jabiru became quite domesticated among the poultry, and they evinced no fear ; even the little bantam tolerated his presence, but whether from fear or affection I know not.

"This bird is as tame as my Native Companion when in captivity, but it will not follow any one about as that bird will, nor has it uttered any sound ; it seems to be voiceless.

"The bird appears timid when any one is looking at him from a short distance, and he then watches acutely all the actions of the intruder ; but when startled by any one coming suddenly upon him, he appears frightened, and spreads his wings as if preparing for flight ; it is then possible, by a little activity, to capture him by his long bill and wings. When the mooruks came too close to him, he looked at them with flashing eyes, and flapped his wings as if to express his contempt towards them on account of their wingless condition, and at the same time the mooruks spread their rudimentary wings, as if to show that they have some stumps resembling wings, and appeared proud of their appendages also.

"When the Jabiru was sunning himself as usual, and any of the mooruks came between him and the sun, he manifested great indignation at their intrusion by clattering his beak, ruffling his feathers, and flapping his wings at them ; if these hints were disregarded, he gave them a blow with his beak, which soon made them walk away.

"The Jabiru was occasionally observed lying upon its breast, with its legs doubled up underneath so as to resemble a large goose with a most disproportionate size of bill. I have noticed him watch the ground very attentively under the trees, and then dart his bill into the ground and bring up larvæ, which I found to be those of the locusts (*Tettigonia*, or Tree-hoppers). When the bird observed a slight motion of the soil, he darted his beak down and devoured the insect as it was emerging from the soil. On any of these insects falling from the trees upon the ground, he would rapidly pick them up and devour them. On giving him one, he first crunched it between his mandibles, and throwing it up caught and devoured it. He appeared to relish these insects very much, and was eager to procure them.

"He became latterly so familiar and domesticated that he would permit the person who was in the habit of feeding him to touch and examine his plumage and wings. When called to be fed, he ran from any part of the yard, and so regular was he in his habits, that when not called at the usual hour, he would stand at the place where he was accustomed to be fed, until his meat was given to him. When the person who fed him called him, he clapped his mandibles and ran up. He seemed to delight in standing in the rain, and did not appear in the least uncomfortable when his feathers were dripping wet. He frequently slept in the open air all night, preferring it to the shelter of the coach-house. He strutted about the yard a long time after dark. When caught by the wings or otherwise annoyed, he displayed his anger by no other sound than a loud and violent clattering of the mandibles, nor did he attempt any act of aggression upon his captors with his powerful beak. He would often run about the yard, spreading and fluttering his wings, merely for exercise."

The Australian Jabiru appears to be a very rare bird ; and as it is extremely wary, and haunts wide expanses where but little cover can be found, it can with difficulty be approached. The natives, with their eagle eyes, their snake-like movements, and the exhaustless patience of

men to whom time is of no value, manage to creep within range of their weapons; but even to them the task is a difficult one, and to Europeans almost impracticable. One good sportsman, who succeeded at last in killing a Jabiru, followed it several days before he could get within long range of the suspicious bird.

The food of this species mostly consists of fish, and eels seem to be their favorite diet. Ordinary fish it swallows at once, but eels and gar-fish are battered about until dead before the bird attempts to devour them. Nearly two pounds of eels and small fish have been found in the stomach of a shot Jabiru.

In its coloring the Australian Jabiru is a very handsome bird, and its movements are quiet, majestic, easy, and graceful. The large head and neck are rich shining green, changing to rainbow tints of violet and purple upon the back of the head, the feathers gleaming in the sun with a light metallic radiance. "The greater wing-coverts, scapularies, lower part of the back and tail are dark brown mixed with rich bluish-green, which changes in the adult to a rich glossy green tinged with a golden lustre. The smaller wing-coverts, lower part of the neck and back, and upper part of the breast are white speckled with ashy-brown, but become pure white in the adult; lower part of the breast, thighs, and inner part of the wings, white. Eyes brilliant and hazel in color. The legs are blackish with a dark tinge of red, becoming of a bright red color in the adult; and when the bird flies with the legs stretched out, looking like a long red tail. . . . My specimen measures three feet ten inches to the top of the head, and is not yet full grown; they are said to attain four or five feet in height." The specimen belonging to Dr. Bennett died after a captivity of about seven months, nearly four of which were passed in Dr. Bennett's residence. The cause of his death was not known—probably the diet might have been injurious.

THE singular WHALE-HEADED STORK is the most striking of its tribe.

This bird lives in Northern Africa, near the Nile, but is seldom seen on the banks of that river, preferring the swampy districts to the running water. Mr. Petherick found it in the Rhol district, about latitude 5° to 8°, in a large tract of country about a hundred and fifty miles in extent, where the ground is continually swelled by rains, and has by degrees modified into a huge morass, some parts flooded with water, others blooming with vegetation, and the whole surrounded by thick bush. "This spot," writes Mr. Petherick in his "Egypt, the Soudan, and Central Africa," "is the favorite home of the *Balæniceps*.

"These birds are seen in clusters of from a pair to perhaps one hundred together, mostly wading in the water; and when disturbed, will fly low over its surface and settle at no great distance. But if frightened and fired at, they rise in flocks high in the air, and after hovering and wheeling around settle on the highest trees, and as long as their disturbers are near, will not return to the water. Their roosting-place at night is, to the best of my belief, on the ground.

"Their food is principally fish and water-snakes, which they have been seen by my men to kill and devour. They will also feed on the intestines of dead animals, the carcasses of which they easily rip open with the strong hook of their upper bill.

"Their breeding time is in the rainy season, during the months of July and August, and the spot chosen is in the reeds or light grass immediately on the water's edge or on some small elevated and dry spot entirely surrounded by water. The bird before laying scrapes a hole in the earth, in which, without any lining of grass or feathers, the female deposits her eggs. Numbers of these nests have been robbed by my men, both of eggs and young, but the young birds so taken have invariably died. After repeated unsuccessful attempts to rear them, continued for two years, the eggs were eventually hatched under hens, which were procured at a considerable distance from the Raik negroes.

"As soon as the hens began to lay, and in due time to sit, a part of their eggs were replaced with half the number of those of the *Balæniceps*, as fresh as possible from the nest, the locality of which was previously known, and several birds were successfully hatched. These young birds ran about the premises of the camp, and, to the great discomfort of the hens, would persist in performing all sorts of unchickenable manœuvres, with their large beaks and extended wings, in a small artificial pool constantly supplied with water by several negresses retained

for their especial benefit. Negro boys were also employed to supply their little pond with live fish, upon which, and occasionally the intestines of animals killed for our use, chopped into small pieces, they were reared."



WHALE-HEADED STORK. - *Balaniiceps rex*.

The chief point in this fine bird is the huge bill, which from its resemblance in size and shape to a shoe, has gained for its owner a second title, namely, Shoe-bird. It is enormously expanded at each side of the beak, the edges of the upper mandible overhangs those of the lower, and its tip is furnished with a large hook curved and sharp as that of an eagle, and

well suited for tearing to pieces the substances on which the bird feeds. Its color is brown, mottled profusely with a deep mahogany tinge. The general color of the plumage is dark slaty-gray above, each feather being edged with a narrow band of grayish-white. The feathers of the front of the neck are pointed, very dark in the centre, and broadly edged with gray. The under surface is gray.

IBIS.

THE SACRED IBIS is one of a rather curious group of birds. With one exception they are not possessed of brilliant coloring, the feathers being mostly white and deep purplish-black. The Scarlet Ibis, however, is a most magnificent, though not very large bird, its plumage being of a glowing scarlet, relieved by a few patches of black.

The Sacred Ibis is so called because it figures largely in an evidently sacred character on the hieroglyphs of ancient Egypt. It is a migratory bird, arriving in Egypt as soon as the

SACRED IBIS.—*Ibis aethiopica*.

waters of the Nile begin to rise, and remaining in that land until the waters have subsided, and therefore deprived it of its daily supplies of food. The bird probably owes its sacred character to the fact that its appearance denotes the rising of the Nile, an annual phenomenon on which depends the prosperity of the whole country.

Sometimes the Ibis stalks in solitary state along the banks of the river, or the many water-courses that intersect the low country, but sometimes associates in little flocks of eight or ten in number. Its food consists mostly of mollusks, both terrestrial and aquatic, but it will eat worms, insects, and probably the smaller reptiles. The Ibis was at one time thought to kill and eat snakes, and this idea was strengthened by the fact that Cuvier detected the scales and bones of snakes within a mummied corpse of an Ibis which was found in the tombs of Egypt, and which is known to be identical with the present species. Recent specimens, however, seldom contain anything but mollusks and insects.

The walk of the Ibis is quiet and deliberate, though it can get over the ground with considerable speed whenever it chooses. Its flight is lofty and strong, and the bird has a habit

of uttering a loud and peculiar cry as it passes through the air. By the natives of Egypt it is called the Abou Hannes, *i. e.*, Father John, or Abou Menzel, *i. e.*, Father Sickle Bill, the former name being in use in Upper and the other in Lower Egypt.

The color of the adult bird is mostly pure silvery white, the feathers being glossy and closely set, with the exception of some of the secondaries, which are elongated and hang gracefully over the wings and tail. These, together with the tips of the primaries, are deep glossy black, and the head and neck are also black, but being devoid of feathers, have a slight brownish tinge, like that of an ill-blackened boot, or an old, crumpled black kid glove. While young, the head and neck are clothed with a blackish down, but when the bird reaches maturity, even this slender covering is shed, and the whole skin is left bare. The body is little larger than that of a common fowl.

ANOTHER species, the GLOSSY IBIS, is also an inhabitant of Northern Africa, but is sometimes found in Europe, where the fishermen know it by the name of Black Curlew. It is probably the Black Ibis mentioned by Herodotus.

The Glossy Ibis is sometimes found in different parts of America, rarely in the northern States, but of more frequent occurrence in the centre or south. Audubon remarks that he has seen great numbers of these birds in Mexico, where it is a summer resident only. The habits and food of the Glossy Ibis are much the same as those of the last-mentioned species, and, like that bird, it was invested while living with sacerdotal honors by the ancient Egyptians, embalmed and honored after death with a consecrated tomb, in common with the bull, the cat, and the sacred Ibis.

The plumage of the Glossy Ibis varies somewhat according to the age of the bird ; so that, according to Yarrell, the same species has been termed the Glossy Ibis, the Green Ibis, and the Bay Ibis by various authors, the difference of color being due to the more or less advanced age of the individual. Both sexes have similar plumage, but the female is smaller than her mate.

In the full-grown bird, the head, neck, and part of the back between the shoulders are dark chocolate, and the wing-coverts and tertials are a still darker brown, glossed with purple and green. The quill-feathers of the wings are dark blackish-brown glossed with green, and the tail is of a similar hue, but glossed with purple. The breast and under surface of the body are chocolate-brown, changing to a duller hue under the wings and upon the under tail-coverts. The beak is dark brown with a tinge of purple, the naked skin round the eyes is grayish-green, the eyes are hazel, and the legs and toes green. In total length this species measures not quite two feet. The young bird is more mottled than the adult, and has little of the bright glossiness of the plumage. The head and neck are dull brown streaked with gray, the whole of the upper surface, together with the wings and tail, are dark reddish-brown, and there are a few irregular patches of white upon the breast.

THE AMERICAN GLOSSY IBIS. At the time of Wilson, this bird had not been recognized as an American species. In 1817, a specimen was taken by Mr. Ord, in New Jersey, and afterwards the species was named in his honor. It has since been found at times along the Atlantic coast, a few times as far north as Massachusetts. Its home seems to be, however, where the egrets and herons are so numerous, in Florida and other Gulf States. The eggs of Ibises are very different from those of herons. The shell is rougher, heavier, and more granular, the difference in texture being very perceptible. They are ovoid, and not ellipsoidal. The female is similar to the male, but somewhat less.

THE SCARLET IBIS (*Eudocemus ruber*). Audubon says: "I have not met with more than three specimens in a state of liberty in the whole range of the United States. These birds occurred at Bayou Sara, in Louisiana, in 1821. They were travelling in a line, in the manner of the white Ibis, above the tree-tops. Although I had only a glimpse of them, I saw them sufficiently well to be assured of their belonging to the present species, and therefore I have thought it proper to introduce them into our fauna." This is the authority, not since corroborated.

THE STRAW-NECKED IBIS derives its name from the tuft of stiff, naked feather-shafts which hang from the front of the neck and breast, and greatly resemble small, yellow straws.

These curious feathers, with their light polished, golden surface, afford a pretty contrast to the glossy green-black of the chest and wings, and the pure white of the neck and abdomen. The following description of the bird and its habits is written by Mr. Gould, in the "Birds of Australia."

"This beautiful Ibis has never yet been discovered out of Australia, over the whole of which immense country it is probably distributed, as it is more abundant in certain localities at one season than at another; its presence, in fact, appears to depend upon whether the season be or be not favorable to the increase of the lower animals upon which the vast hordes of this bird feed. After the severe drought of 1839, it was in such abundance on the Liverpool plains, that to compute the number in a single flock was impossible. It was also very numerous on the seaside of the great Liverpool range, inhabiting the open downs and flats, particularly such as were studded with shallow lagoons, through which it would wade knee-high in search of shelled mollusks, frogs, newts, and insects; independently of the food I have mentioned, it feeds on grasshoppers and insects generally. The natives informed me that sometimes many seasons elapsed without the bird being seen. Where, then, does it go? To what country does it pass? Does there not exist a vast oasis in the centre of Australia, to which the bird migrates when it is not found in the located parts of the country? We may reasonably suppose such to be the case.

"The Straw-necked Ibis walks over the surface of the ground in a very stately manner; it perches readily on trees, and its flight is both singular and striking, particularly when large flocks are passing over the plains, at one moment showing their white breasts, and at the next, by a change in their position, exhibiting their dark-colored backs and snow-white tails. During the large semicircular sweeps they take over the plains, and when performing a long flight, they rise tolerably high in the air; the whole flock then arrange themselves in the form of a figure or letter similar to that so frequently observed in flights of geese and ducks.

"The note is a loud, hoarse, croaking sound, which may be heard at a considerable distance. When feeding in flocks they are closely packed, and from the constant movement of their bills and tails, the whole mass seems to be in perpetual motion. In disposition this bird is rather shy than otherwise; still, with a very little care, numerous successful shots may be made with an ordinary fowling-piece.

"The sexes, when fully adult, exhibit the same beautiful metallic coloring of the plumage. The female is, however, smaller, and has the straw-like appendages on the neck less prolonged and less stout than in the male. Mature birds only have the whole of the head and back of the neck quite bare of feathers."

The coloring of the Straw-necked Ibis is very conspicuous, and the lines of demarcation between the different tints are sharply drawn. The head and part of the neck are deep sooty-black, which suddenly changes into a beautiful white downy plumage, clothing the remainder of the neck. From the fore part of the neck and throat hang a number of delicate fringe-like feathers. The whole of the upper surface is colored of a deep and glistening green-black, "shot" with purple, and changing its tints at every variation of light. Irregular bars of the same color as the head are drawn across the back, and the entire under-surface is pure white. During the life of this bird the thighs are slightly colored with crimson, but this tinting soon vanishes after death.

WOOD IBIS (*Tantalus loculator*). This is a bird of considerable size for an Ibis. It inhabits the South Atlantic and Gulf States; ranging north to Ohio, Illinois, and the Carolinas; southward, it reaches Cuba and South America. It is a remarkable and interesting bird. It resembles a crane, being nearly four feet in length; standing higher than that when erect. It is pure white, with the tips of wings and the tail black. The adult bird has an entirely bald head, and an enormously thick, heavy bill, tapering and a little decurved.

In Florida it is absurdly called the Gannet, a term properly applied to a sea-bird. In Colorado it is named Water Turkey. In Florida, on the Upper St. John's, it is quite common. A large breeding-place is known on the borders of Lake Ashley, in Florida. It is estimated that a thousand pairs breed there. Dr. Bryant, who visited this place, says: "I almost

invariably saw flocks both at their breeding-places, and on their feeding-grounds, and flying, they varied in numbers from a dozen to a hundred." Dr. Coues says: "While I would not advise the reader to visit Fort Yuma, from any great distance, merely to study the habits of this bird, yet, if he should by any unfortunate chance find himself in this uncomfortable place, he will have an excellent opportunity of doing so, for the Water Turkeys are very common there. Meanwhile let my experience answer the purpose.

"We will walk abroad, in imagination, this fine September morning; we leave camp as soon as it is light enough to see, for when the sun is two or three hours high, we shall be glad enough to return to the shelter of the verandah. Just now it is pleasant and comparatively cool, for since midnight the thermometer has fallen below 90°; it was 115° in the shade yesterday afternoon, and will mark a hundred perhaps to-day at breakfast-time, when we return with an Ibis or two.

"The Colorado makes a bend around a bluff we stand upon. . . . The Ibises will very likely be found in the swampy covert, into which we descend by a steep, well-worn path, and are at once lost in the bushes. . . . Coveys of plumed quail are trooping along half-covered ways, clinking in merry concert. Abert's finches rustle in every tangle; in the green willow clumps, orange-crowned warblers are disporting, and sipping dew from leafy, scroll-like cups."

After procuring a few specimens, the heat drove the Doctor in, and he settles himself for a shady rest, when, "A long line of white, dimly seen at first in the distance, issues out of the gray-green woods. It is a troop of Wood Ibises, leaving their heated covert for what seems the still less endurable glare of day, yet recognizable, for they have before enjoyed the cooler current of the upper air. They come nearer, rising higher as they come, till they are directly overhead in the bright blue sky, flapping heavily until they have cleared all obstacles. Then mounting faster with strong regular beats of their broad wings; now they sail in circles, with widespread, motionless pinions, supported as if by magic. A score or more cross each other's paths in interminable spirals, their snowy bodies tipped at the wing-points with jetty black, clear cut against the sky; they become specks in the air, and finally pass from view. They are often joined by turkey buzzards in numbers." Audubon describes the feeding of the Wood Ibis thus: "It feeds entirely on fish and aquatic reptiles, of which it destroys an enormous quantity—in fact, more than it eats; for, if they have been killing fish for half an hour, and gorged themselves, they suffer the rest to lie on the water untouched, to become food for alligators, etc.

"To procure its food, the Wood Ibis walks through shallow, muddy lakes or bayous in numbers. As soon as they have discovered a place abounding in fish, they dance, as it were, all through it, until the water becomes thick with the mud stirred from the bottom. The fishes on rising to the surface are instantly struck by the beak, and on being deprived of life, turn over and remain so. In the course of ten or fifteen minutes hundreds of fishes, frogs, water-snakes, etc., cover the surface, and the birds greedily swallow them, until they are completely gorged, after which they walk to the nearest margins, place themselves in long rows, with their breasts all turned towards the sun, in the manner of pelicans and vultures."

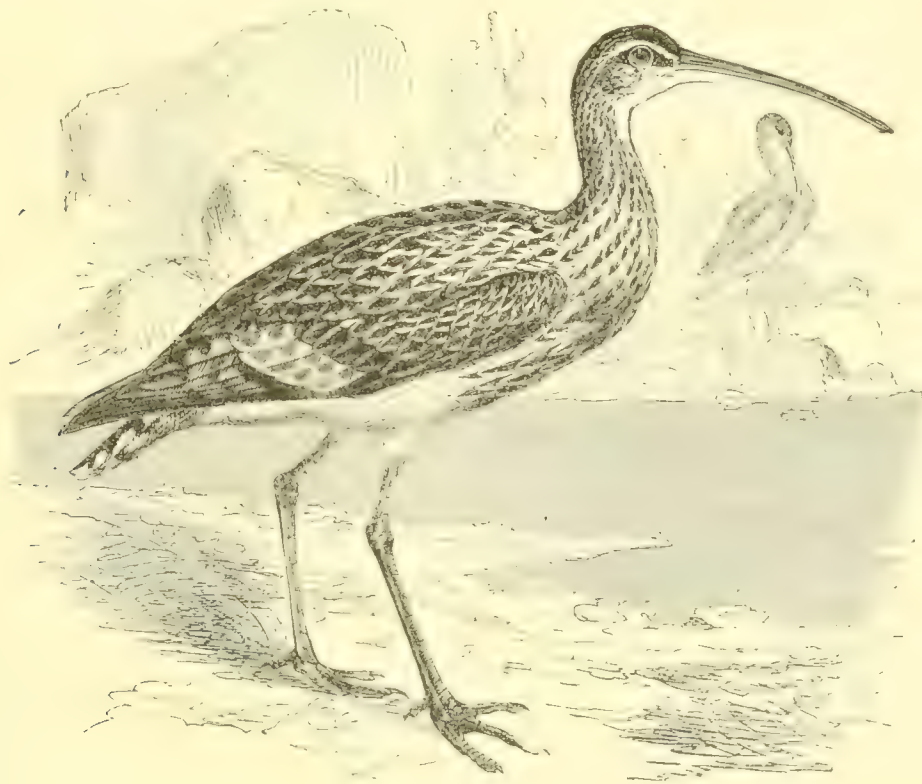
VARIETIES.

THE two birds which have been chosen to represent the large genus *Numenius* are the Curlew, or Whaup, and the Whimbrel.

THE CURLEW is mostly found upon the sea-shore and open moorlands, and partly on account of its wild, shy habits, and partly because its flesh is very delicate and well flavored, is greatly pursued by sportsmen. These birds are most annoying to a gunner who does not understand their ways, having a fashion of keeping just out of gun-range, rising from the ground with a wild mournful cry which has the effect of alarming every other bird within hearing, and flying off to a distance, where they alight only to play the same trick again. Moreover, they are strong on the wing and well feathered, so that they require a sharp blow to bring them down, and necessitate the use of large shot. When thus alarmed they generally

skim along at a low elevation, averaging about four or six feet from the ground, and consequently afford little mark.

Sir W. Jardine writes as follows concerning the habits of the Curlew: "They retired regularly inland after their favorite feeding-places were covered. A long and narrow ledge of rocks runs into the sea, behind which we used to lie concealed for the purpose of getting shots at various sea-fowl returning at ebb. None were so regular as the Curlew. The more aquatic were near the sea and could perceive the gradual reflux; the Curlews were far inland, but as soon as we could perceive the top of a sharp rock standing above water, we were sure to perceive the first flocks leave the land, thus keeping pace regularly with the change of tides. They fly in a direct line to their feeding-grounds, and often in a wedge shape; on alarm a simultaneous cry is uttered, and the next coming flock turns from its course, uttering in repetition the same alarm-note. In a few days they become so wary as not to fly over the concealed station."



CURLEW.—*Numenius arquatus*.

The breeding-grounds of the Curlew are more inland, the locality varying according to the character of the district, wild heath and high hilly grounds being chosen in some places, while marshy and boggy soils are favored in others. The nest of this bird is very slight, being only a small heap of dry leaves or grasses scraped together under the shelter of a tuft of heather or a bunch of rank grass. There are usually four eggs, placed, as is customary with such birds, with their small ends together, and being much larger at one end than at the other. Their color is brownish-green with some blotches and splashes of dark brown and a darker green. The young are curious little birds, long-legged, short-billed, covered with puffy down, and with very little indications of either wings or tail.

The general coloring of the Curlew is brown, lighter upon the head and neck, and darker upon the back, each feather being darker in the centre than on the edges. The upper tail-coverts are white streaked with brown, the smaller wing-coverts are edged with grayish-white, and the tail is gray-white barred with brown. The wings are black, and some of the quills have white shafts. The chin is white, and the under parts are also white, but with a tinge of

gray and streaked with short marks of dark brown. The under tail-coverts are white. Both sexes are colored alike, and the average length is rather more than twenty inches.

THE LONG-BILLED CURLEW (*Numenius longirostris*) inhabits the United States generally, and the British provinces, breeding nearly throughout its range. It reaches south into Mexico. It is regarded as rather uncommon in New England. Great numbers breed about Great Salt Lake, and in Texas. It is quite as often seen in the interior as on the coast, visiting often the great dry plains, where it feeds on mollusca, insects, etc., and even berries. Dr. Newberry found them associating in great numbers with geese and other water-birds, which were congregated in countless numbers on the low lands bordering the Columbia River, in October. This bird was, for a time, thought to be identical with the European, but is now known to be distinct. It breeds in Labrador, and the neighborhood of Hudson's Bay. This species is twenty-five inches in length, and thirty-nine inches in alar extent. The bill is eight inches in length. The bill continues to grow in length until the second season. In the front, under the skin, there are two thick callosities, which border the upper side of the eye, lying close to the skull. These are common to most of this group of birds, and are designed, probably, to protect the eye from injury as it thrusts the bill into the soil. The sexes are alike in plumage. This Curlew flies high and rapidly, generally throwing itself with others, when in company, into an angular wedge, after the manner of wild geese; uttering, as they fly and when all alarmed, a loud, sharp, whistling, and almost barking note, sometimes, as in other species of the family, strongly resembling the sibilation of the word *kurlew*, and from whence they derive their characteristic name, adopted in many languages. By a dexterous imitation of this note, the sportsman very successfully arrests its flight. "In the Boston market," says Nuttall, "they are seen as early as 8th of August, having already raised their brood, and proceeded thus far towards their winter quarters."

THE HUDSONIAN CURLEW (*Numenius hudsonius*). This much less common species is native to North America, Greenland, Central and South America. It breeds in high latitudes. In Labrador it is seen in small numbers with the countless thousands of the Esquimaux Curlew that throng the shores in August and September. It is rare in New England, but is seen on the Jersey coast.

Audubon writes: "I have found this species abundant on the shores of New Jersey in the month of May, and there they remain a few weeks. I once saw a large flock of them near Charleston, in the month of December, and I have found them in the Boston market in September. None were ever seen by me in any part of the interior, where, indeed, it is probable they very seldom make their appearance. Having compared specimens of the present species with the Whimbrel of Europe (*Numenius phaeopus*), I am satisfied that they are perfectly distinct."

As Audubon has nothing of any importance to add, we may present a few extracts from Wilson and Nuttall, both of whom have had opportunities of observing this species.

"The Short-billed Curlew," says the former, "arrives in large flocks on the sea-coast of New Jersey early in May, from the south, frequents the salt-marshes, muddy shores, and inlets, feeding on small worms and minute shellfish. They are most commonly seen on mud-flats at low water, in company with various other waders, and, at high water, roam along the marshes. They fly high, and with great rapidity. A few are seen in June, and as late as the beginning of July, when they generally move off toward the north. Their appearance on these occasions is very interesting. They collect together from the marshes as if by premeditated design, rise to a great height in the air, usually an hour before sunset, and, forming in one vast line, keep up a constant whistling on their way to the north, as if conversing with one another to render the journey more agreeable. Their flight is then more slow and regular, that the feeblest may keep up with the line of march; while the glittering of their beautifully speckled wings, sparkling in the sun, produces altogether a very pleasing spectacle.

"In the month of June, while the dewberries are ripe, these birds sometimes frequent the fields, in company with the Long-billed Curlews, where brambles abound, soon get very fat, and are at that time excellent eating."

Nuttall says: "From the middle of August to the beginning of September, they arrive in the vicinity of Massachusetts Bay, and other parts of New England, frequenting the pastures as well as marshes, and fatten on grasshoppers and berries, till the time of their departure, about the close of September, and they wholly disappear from New Jersey, on their way to the South, early in the month of November."

THE ESQUIMAUX CURLEW (*Numenius borealis*). This species inhabits the middle and northern portions of America. Supposed not to be found north of the Rocky Mountains. It breeds within the Arctic Circle, and is migratory through the United States, where it seldom winters, and never breeds. It migrates in immense numbers through the Missouri region, in May. Flocks of from fifty to several hundreds are seen at such times on the prairies.

Dr. Coues' delightful description we will quote:—

"The Curlews associate in flocks of every size, but they generally fly in so loose and straggling a manner, that it is rare to kill more than half a dozen at a shot. When they wheel, however, in any of their many beautiful evolutions, they close together in a more compact body. Their flight is firm, direct, very swift, when necessary much protracted, and is performed with regular, rapid beats. They never sail, except when about to alight, when the wings are much incurved downward, in the manner of most waders. As their feet touch the ground, their long, pointed wings are raised over the back until the tips almost touch, and then deliberately folded, much in the manner of the solitary sandpiper. Their note is an often-repeated, soft, mellow, though clear, whistle, which may be easily imitated. . . . When in very extensive flocks, they have a note which, when uttered by the whole number, I can compare to nothing but the chattering of a lot of blackbirds. When wounded and taken in hand, they emit a very loud, harsh scream, like that of a common hen under such circumstances. Curlews are most excellent eating, and are favorite game. This bird is called by the gunners of the seacoast, Short-billed Curlew. It was once thought to be the same as the English Whimbrel. Wilson says that the Esquimaux Curlew arrives in large flocks on the seacoast of New Jersey, early in May. They are commonly seen on the mud-flats, in company with other waders, and at high water roam along the marshes. They fly high, and with great rapidity. A few are seen in June and as late as the beginning of July, when they generally move off to the South. Their appearance on those occasions is very interesting. They collect together from the marshes, as if by premeditated design, rise to a great height in the air, usually about an hour before sunset, and forming one vast line, keep up a constant whistling on their way to the North, as if conversing with one another. Their flight is then more regular, presenting a beautiful spectacle. This bird is eighteen inches in length, and thirty-two inches in extent of wing. The bill is four inches and a half long."

A species, called the BRISTLED-THIGHED CURLEW (*Numenius tahitiensis*), is found as a straggler in Alaska. The *Numenius phaeopsis* is casual, according to several records, in Eastern North America.

At first sight the WHIMBREL looks something like a diminutive curlew, save that the bill is not so long, so thick, nor so sharply curved as in the preceding species. On account of this resemblance it is in some places known by the name of Half-Curlew, and in others it is called the Jack Curlew, or by the popular name of Tang-Whaap.

Two species of Godwits are known in Europe, the Common, or Bar-tailed, and the Black-tailed Godwit. These birds may be known from each other by the peculiarity from which they derive their name, the one species being distinguished by the uniform black hue of the latter two-thirds of the tail, and the other by the brown and gray bars which cross the tail-feathers.

THE MARBLED GODWIT (*Limosa fæda*) is found in all parts of the sea-coast of temperate North America, Central and South America, and the West Indies. Dr. Coues says: "The

centre of its abundance in summer, and its main breeding-grounds are, apparently, the Northern Mississippi and Eastern Missouri regions, and thence to Saskatchewan; for, unlike its relative, the Hudsonian Godwit, it does not proceed very far north to breed. It breeds in Iowa, and Minnesota, and Eastern Dakota. I found it on the plains, feeding with long-billed curlews, and great numbers of Bartram's sandpipers. In its habits at this season it more nearly resembles the curlews. On intrusion near the nest, the birds mount in the air with loud, piercing cries, hovering slowly around with labored flight in evident distress, and approaching sometimes within a few feet of the observer.

Gunners call this bird Strait-billed Curlew, and often Red Curlew. It is shy and cautious, yet strongly attached to each other. When one is wounded, the whole flock is arrested in flight, and they hover over the unfortunate bird. Like the curlew, this bird can be called by imitating its voice. A slight difference in marking distinguishes the sexes. The male bird is nineteen inches long, and thirty-four in extent of wing. The bill is nearly six inches in length; unlike that of the curlew, it is nearly straight.

A species is found on the western, or Pacific coast, called the *Limosa lapponica*.

THE HUDSONIAN GODWIT (*Limosa hemastica*) inhabits eastern North America, the West Indies, and South America. It is rare along the Atlantic coast. This bird is called Black-tail Godwit in some quarters, though the following is now regarded as the true one of that name—*Limosa egocephala*.

THE GREATER YELLOW SHANKS, OR TELL-TALE (*Totanus melanoleucus*), called also Tattler, is an exclusively American bird, found in all parts of this continent. It is abundant in winter and during the migrating season. Breeds mostly in high latitudes. Wherever there is water in the Missouri region these birds abound. In some places they are the most numerous of all the waders.

The term Tell-tale was applied to this bird from the fact that it is so noisy. Its whistle, which consists of four notes rapidly repeated, is so loud, shrill, and alarming, as instantly to arouse every duck within its hearing, and thus disappoint the eager expectations of the marksman. The bird arrives on our coast in April, breeds in the marshes, and continues until November, about the middle of which month it generally moves off to the South.

The Tell-tale seldom flies in large flocks, at least during the summer. On the least appearance, it utters its shrill whistle and mounts on wing, generally accompanied by all the feathered tribe within hearing. It sometimes rises to a great height in the air, and can be distinctly heard when it cannot be seen.

The Tell-tale is fourteen inches in length, and twenty-five inches in extent of wing.

YELLOW-LEGS, OR LESSER YELLOW SHANKS (*Totanus flavipes*). The *habitat* of this species is the whole of the Western hemisphere. Its breeding-places are from the northern States, northward. Many winter in the Southern States. It is found in Europe as a straggler. The Yellow-legs associates with the preceding in equal abundance. East of the Rocky Mountains it is abundant, and generally distributed, but on the western slope very sparingly. Great numbers are brought into the markets of our large towns, particularly in autumn. Its flesh is in great favor. Its voice is a sharp whistle of three or four notes, when about to take wing and when flying. The length of this bird is ten inches; extent of wing twenty. The bill is slender and straight, about an inch and a half long. The female is closely like the male.

THE SOLITARY SANDPIPER (*Rhyacophilus solitarius*), called also Wood Tattler. This is an American species, confined to the Western hemisphere. It is accidental in Europe. It breeds in the northern part of the United States and northward. It is abundant, and migratory, wintering quite within the tropics.

Dr. Coues says: "About Washington, D. C., it is very common indeed at certain seasons. It arrives late in April, and for two weeks or so is to be found in all suitable situations; then none are to be seen, except a few straggling young, just at the end of summer, until late in

September, when, after an equally late sojourn, the birds pass on. They differ from most of their relatives in their choice of feeding-grounds, or of places where they originally alight to rest while migrating; a difference accompanied, I suppose, by a corresponding modification of diet. Their favorite resorts are the margins of small, stagnant pools, fringed with rank grass and weeds, the miry tide-water ditches that intersect marshes, and the soft, oozy depressions in low meadows and watery savannas. They frequent, also, the interior of woods, not too thick, and collect there about the rain-puddles. They cannot be said with entire propriety to be solitary, though the name is well enough to indicate less social propensities than most of the waders possess. I generally found from one or two to a half dozen of these birds together."

This bird seems to be rather exclusive; differing quite distinctly in this respect from many other waders. It has the curious habit of "bobbing" up and down.

This bird rises easily on wing, flying slowly, with legs dangling and neck outstretched, then alighting and gazing around listlessly. As the feet touch the ground, the long, pointed wings are lifted until their tips nearly meet, and are then deliberately folded,—in these motions resembling the habits of the Esquimaux curlew. When suddenly alarmed, the Tattlers utter a low and pleasing whistle as they fly off. They are thought to be extremely tender, and easily killed; a charge of fine shot, that would not bring down a warbler, killing the Tattler even at long range.

"The Solitary Sandpiper," says Wilson, "inhabits the watery solitudes of our highest mountains during summer, from Kentucky to New York, but is nowhere numerous, seldom more than one or two being seen together. At the approach of cold weather, it descends to the muddy shores of our rivers, where it is occasionally met with singly, on its way southward. They regularly breed in Pennsylvania, on the Pocono Mountains. It is usually silent, excepting when it is flushed, when it utters a sharp whistle. It is eight inches in length, and fifteen inches in extent of wing. The sexes are alike in color."

Wilson says that this species bears considerable resemblance to the Green Sandpiper of Europe. This latter bird is enumerated with North American species, on account of its occasional visits to this country.

THE WILLET (*Symphemia semipalmata*). This fine bird is an American species, found as a straggler in Europe. It breeds in most portions of the United States. On the North Carolina coast it breeds in great numbers. Usually, Willets are noisy, restless, and wary. Both parents take turns at incubation. The half webbing of the toes renders it able to swim, though it does not resort to swimming unless pushed to it.

Wilson calls this bird the Semipalmated Snipe. It is also called Stone Snipe, and Semipalmated Tattler. It is one of the most noisy birds that inhabit our salt marshes. Its note is *Pill-will-willet*—hence the name. This is heard at a long distance, uttered incessantly. The flesh of this bird is excellent eating, and the good size makes it a desirable game bird. The plumage is changed for the two seasons, varying to such an extent as to appear like that of two distinct species. Its length is fifteen inches; extent of wing thirty inches. It stands high, like the curlews. The female is larger than the male.

THE RUFF (*Machetes pugnax*) is so frequently a straggler into this country, that it has been entered on the list of North American birds. The Wandering Tattler (*Heterosceles incanus*) also has the same standing as an American bird.

BARTRAM'S PLOVER (*Bartramia longicauda*), or Sandpiper, also called Upland Plover. This species has a wide dispersion in the Western hemisphere, and is an occasional visitor in Europe. It is not known west of the Rocky Mountains; Nova Scotia seems to be its northern limit. It breeds in the middle of summer.

It winters in Mexico and the West Indies, and southward to South America. It occurs in summer as far north as the Yukon, though great numbers breed within the United States. Grass Plover is another name applied to it in the Eastern States, while in the region between

the Mississippi River and the Rocky Mountains it is called Prairie Pigeon, where it is very abundant during migration.

Dr. Coues says: "Their ordinary note is a long-drawn, soft, and melancholy whistle, of a peculiarly clear, resonant quality; but besides this, they have a note peculiar, I believe, to this period of their lives. This is a very loud, prolonged cry, sounding more like the whistling of the wind than a bird's voice. The wild sound, which is strangely mournful, is generally uttered when the bird, just alighted, holds its wings for an instant perpendicularly, before adjusting them over the back. It is frequently heard in the night. There is another note that this Tattler has, chiefly when disturbed breeding; this is a harsh scream, quickly and often repeated, much like that given by other waders under the same circumstances. It is esteemed as a delicacy. There is no difference in the plumage at different seasons, and the sexes are alike in size and coloration. Its length of body is about twelve inches, and extent of wing twenty-three inches. This bird was named after Bartram by Wilson. It runs with great rapidity, spreading the tail and dropping the wings. When it alights it stands very erect, and has a few sharp, whistling notes as it mounts to fly. Its flesh is regarded as superior in point of delicacy, tenderness, and flavor to any other of its tribe. The sexes are nearly alike.

THE BUFF-BREASTED PLOVER (*Tryngites rufescens*) inhabits the whole of North America. It is migratory in the United States, but is not often seen on the Eastern coast. It breeds in the fur countries, in the interior, and extends its *habitat* to South America. Its habits are similar to Bartram's Plover. A few of these birds are observed every season on Long Island.

Nuttall says: "This elegant species, some seasons, is not uncommon in the market of Boston, being met with near the capes of Massachusetts Bay."

Wilson does not mention it. Its length is eight inches, and extent of wing about fourteen.

SPOTTED SANDPIPER (*Tringoides macularius*). Native to North America, and breeds nearly throughout its extent of country, wintering in the Southern States and beyond. It is also found in South America, and is a straggler in Europe. Although it reaches the high latitudes, it breeds equally well in every part of America, and is one of the best known and most abundant of its tribe. It nests in a field or orchard, generally near water, visiting equally the interior and sea-coast.

Wilson says that this species is as remarkable for perpetually wagging the tail as others for nodding the head; even the young just out of the shell run about, constantly wagging the tail.

On the approach of an intruder in the breeding-season, the parents exhibit great distress, limping and otherwise counterfeiting lameness, and fluttering along the ground. Its flight is usually low, skimming along the surface of the water, its long wings making a considerable angle downward from the body, while it utters a rapid cry of *weet-weet-weet* as it flutters along, seldom steering in a direct line up or down the river, but making a long, circuitous sweep. It rarely associates with other Plovers.

The length of the Spotted Sandpiper is seven and a half inches, with an extent of wing of thirteen inches. The sexes are much alike.

THE two birds, the Green Sandpiper and the Avocet, belong to the species of the Totaninæ.

THE GREEN SANDPIPER is, like the whole of its tribe, a frequenter of wet and marshy lands, and seems not to be so fond of the sea-shore as many allied species. Salt-water marshes are, however, favorite spots with these birds, and whenever the brackish water spreads from the sea-coast over the adjoining country, there the Green Sandpiper may generally be found. It is a quick and active bird, running about with much agility, and flirting its short tail up and down as it moves along. It is rather noisy, its cry being a shrill whistle remarkably loud in proportion to the size of the bird, and very constantly repeated. When flushed it begins to scream, and flies rapidly away at a low elevation, keeping as much as possible over the water.

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Animate Creation.

WE have concluded to submit for public patronage a work with the above title, being a series of exquisite Engravings representing the ANIMAL WORLD, executed with great scientific accuracy, and accompanied by full Descriptive Text, written in popular terms, so as to delight and instruct the people. Anyone who has considered the subject must be at a loss to understand why an ILLUSTRATED NATURAL HISTORY, comprehensive and at the same time popular, has not before this been published in this country. Indeed any lover of animals who has visited the great museums and zoological gardens and has had access to books of engravings in the public libraries, could not fail to remark the wealth of material in existence devoted to this subject. Being confirmed in our conviction of the desirability of such a work, we laid under contribution the best existing authorities for the production of most perfect representations of all the more important living creatures, and among the artists whose delineations will delight the reader, we may mention Harrison Weir, Wolf, Coleman, Fr. Specht, and Mutzel. By far the majority of the engravings in these volumes are from drawings made from the *living* animals, many at the Zoological Society's Gardens in London, England.

We purpose that our patrons shall be aided and interested in their study by such an array of pictures as has never before embellished any Natural History. In numerous instances the engraving is printed in oil-colors, and this portion of the illustrations has been taken charge of by Messrs. L. Prang & Co., of Boston, who we believe rank foremost for high artistic results in this department of printing. These Oleographs were copied under the superintendence of Mr. Prang from the renowned "Tafeln" of "Brehm's Thierleben," so that they may be declared perfectly reliable.

We sought competent advice from various sources as to the most suitable text that should accompany this panorama of handsome Engravings. It was found impossible to embody all the present ideas of naturalists in a single work like this on account of the rapid advances and constant changes in their knowledge of, and habits of thought respecting, the Animal World. And it seemed to us correct that the true object of Zoology is not to arrange, to number, and to ticket animals in a formal inventory, but to inquire into their life-nature, and not simply to investigate the lifeless organism.

What do we know of "Man" from the dissecting-room? Is it not Man, the warrior, the statesman, the poet, etc., that we are interested in? With all veneration which attaches itself to those who are the accredited possessors of abstruse learning, their inordinate use of phraseology detracts too much, we fear, from the fascination that the study of the Animal World would otherwise yield, and as we are not content to have our work restricted to a favored few, we thought the task placed in our hands to be to keep the work free from a repellant vocabulary of conventional technicalities. Our endeavor has been to find an author whose work would be noted for its fund of anecdote and vitality rather than for merely anatomical and scientific presentation, and we arrived at the conclusion that we could not do better than avail ourselves of the Rev. J. G. Wood's comprehensive work—a work most popularly approved by speakers of the English language. It would be superfluous to say one word concerning the standard character of his book, from the pages of which old and young at the other side of the Atlantic have obtained so much instruction and rational amusement. Avoiding the lengthened dissertations and minute classifications of specialists, he presents to his readers in popular terms a complete treatise on the Animal Kingdom of all climes and countries. The one objection that could be urged against it was, that animal life in America might be treated more fully and American forms given more consideration. In order to obviate this drawback and to do full justice to the creatures of our own country, we secured the aid of Dr. J. B. HOLDER, of the American Museum of Natural History in New York, an undoubted American authority, who has adapted Wood's work to American wants and given prominence to American forms of Animal life.

The splendid work on Rodentia, by Allen, Coues, and others, will be fully consulted. The valuable work on North American Birds, by Baird, Brewer, and Ridgway, will be the guide in the treatment of birds. The late arrangement of the classification and nomenclature of North American Birds, by Mr. Ridgway, and the Committee on that subject of the Ornithologists' Union, will be utilized in full. The arrangement of Mammals will be after the latest classification by Professor Flower, of the Zoological Society of London. So that this will be the first popular Natural History worthy of the name that has made its appearance here, which gives due and full recognition to the animate world surrounding us.

Terms of Publication.

The extent of the work will be 68 parts of 28 pages, at the price of 25 cents each. The entire publication will contain 31 Oleographs and 68 Full Page Engravings on Wood, besides many hundreds of exquisite Illustrations interspersed through the text. The parts will be issued every two weeks, and are payable only as delivered. No subscriber's name will be received for less than the entire work, and anyone removing, or not regularly supplied, will please address the Publisher by mail. **No order can be cancelled after acceptance.**

N. E.

SELMAR HESS, Publisher, New York.

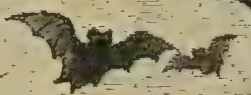
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Animate Creation

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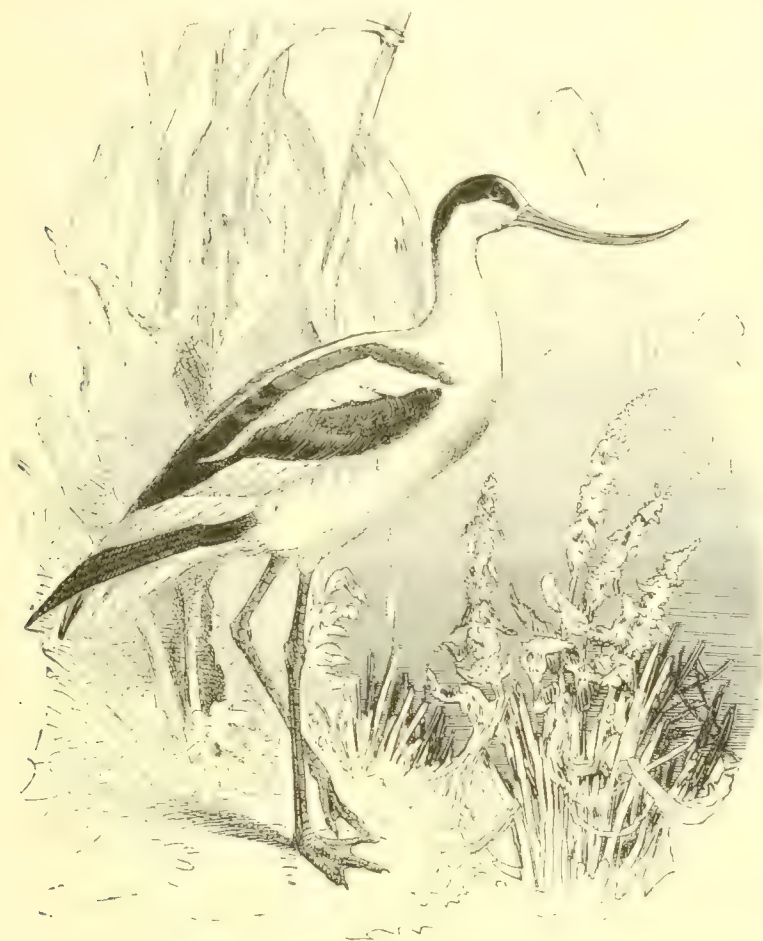


Selmar Hess,
Publisher
New York

THE COMMON SANDPIPER, or SUMMER SNIPE, is a well-known visitor to northern Europe, and has derived its name of Summer Snipe from its habit of remaining there only during the summer months, arriving about April or May and leaving before October.

THE STILT SANDPIPER (*Micropalma himantopus*) is a native American bird. It is not observed west of the Rocky Mountains, and is rather rare in the United States. In the West Indies, Central America, and the most of South America it occurs. It breeds in high latitudes, and is occasionally taken in New England during the migrating season.

Dr. Coues says of it: "This is a very remarkable Sandpiper, connecting this group with the true snipes by means of *Macrorhamphus*, with which its relationships are very close. Its pattern of coloration and changes of plumage are much as in *M. griseus*. The bill is quite snipe-like, though shorter; the legs are very long, relatively exceeding those of *Macrorhamphus*, and there are two basal webs to the toes, as in *Ereunetes*."



AVOCET.—*Recurvirostra avocetta*.

THE AVOCET is one of the most remarkable among European birds, and is easily recognizable by its long, curiously-curved beak, and its boldly pied plumage.

The Avocet is not a common bird in northern countries of Europe, and is now but seldom seen, though in former days it used to be tolerably plentiful on the sea-coasts and in marshy lands. The long and oddly-curved beak is very slender and pointed, and from its peculiar shape has earned for its owner the name of Cobbler's Awl Bird. While obtaining its food the Avocet scoops the mud with its beak, leaving sundry unmistakable marks behind; and is called in some countries the Scooper. The food of the Avocet consists almost wholly of worms, insects, and little crustaceans; and while the bird is engaged in the search after these creatures it paddles over the oozy mud with its

webbed feet and traverses the soft surface with much ease and some celerity. The cry of the Avocet is a sharp, shrill kind of yelp, and is uttered whenever the bird is alarmed. The flight is strong and rapid.

The nest of the Avocet is placed on the ground in some convenient hollow, and the eggs are yellowish-brown with black marks. The mother will feign lameness when observed, like the preceding species.

The greater part of the plumage of this bird is pure white, but the top of the head, the back of the neck, the scapularies, lesser wing-coverts, and the primaries are jetty black. It is a rather large bird, measuring about eighteen inches in total length. The beak is extremely thin, and has been well compared by Yarrell to "two thin pieces of whalebone coming to a point and curving upwards."

AMERICAN AVOCET (*Recurvirostra americana*). This long-legged bird inhabits the United States and the British Provinces, north to the Great Slave Lake. It is rare in New England, and breeds in all parts of its range. From its excessive clamoring it is called by the Jersey gunners Lawyer. This bird associates in numbers on the beaches, uttering *click, click, click*, incessantly. The male is eighteen inches and a half long, and two feet and a half in extent of wing. The female is a few inches smaller, and differs somewhat in coloration. It is, unlike many of the wading birds, more abundant in the interior than on the sea-coast, the Mississippi Valley being a favorite region.

Dr. Coues says: "They were quite gentle and familiar and not at all disturbed by my approach, displaying a characteristic of theirs during the breeding-season—at least in regions where they are not often molested—and have, therefore, not learned a wholesome dread of man. They walk leisurely about, up to their bellies in water, with graceful, deliberate steps, each of which was accompanied by a swaying of the head and neck, as usual with birds of similar form. When approached too closely, they rose lightly from the water, uttering their peculiar cries, flapped leisurely to a short distance, and again alighted to pursue their peaceful search for food, forgetting, or at least not heeding, their recent alarm. As they rose from the water, their singularly long legs were suffered to dangle a few moments, but were afterwards stretched stiffly backward, as a counterpoise to their long necks; and, thus balanced, their lithe bodies were supported with greatest ease by their ample wings. When about to re-alight, they sailed without flapping for a little distance, just clearing the water, their legs again hanging loosely. As they touched the ground, their long wings were held almost upright for an instant, then deliberately folded, and settled in place with a few slight motions."

Avocets and Stilts correspond in habits as closely as they do in form. One of the most marked characteristics is seen in the feet. Avocets have a hind toe, which the Stilts have not, and their feet are almost completely webbed. They are, therefore, the best swimmers of the long-legged waders.

THE BLACK-NECKED STILT (*Himantopus mexicanus*). This bird inhabits the United States generally, Cuba, Mexico, Central and South America. Besides having singularly long and slender legs, this bird has long pointed wings, but of ample width; its flight in consequence is firm, vigorous, and swift. When folded they reach beyond the tail, and as the under-coverts reach to the end, the bird tapers off behind to a fine point. On the ground, whether walking or wading, it moves gracefully, with measured steps; the long legs are much bent at each step—only at the joint, however—and planted firmly, perfectly straight.

THE STILT PLOVER is nearly as conspicuous for its long legs as the Avocet for its curved bill.

This bird, which really looks as if the legs were intended for a body at least twice its size, is sometimes, but very rarely, found in northern districts of Europe, and whenever it is found there, generally prefers the swampy or marshy ground. Owing to the great scarcity of this species, and its speedy fate from powder and shot, very little is known of its habits; but if we may judge by the Black-necked Stilt of America, it employs its long legs in wading through the water in search of food, and picks up the various aquatic inhabitants which come in its path.

Wilson remarks of the Black-necked species, that when these birds alight on the ground "they drop their wings, stand with their legs half bent and trembling as if unable to support the weight of their bodies. In this ridiculous position they will sometimes stand for several minutes, uttering a curring sound, while from the corresponding quiverings of their wings and long legs they seem to balance themselves with great difficulty. This singular manœuvre is no doubt intended to induce a belief that they may easily be caught, and so turn the attention of the person from the pursuit of their eggs and young to themselves."

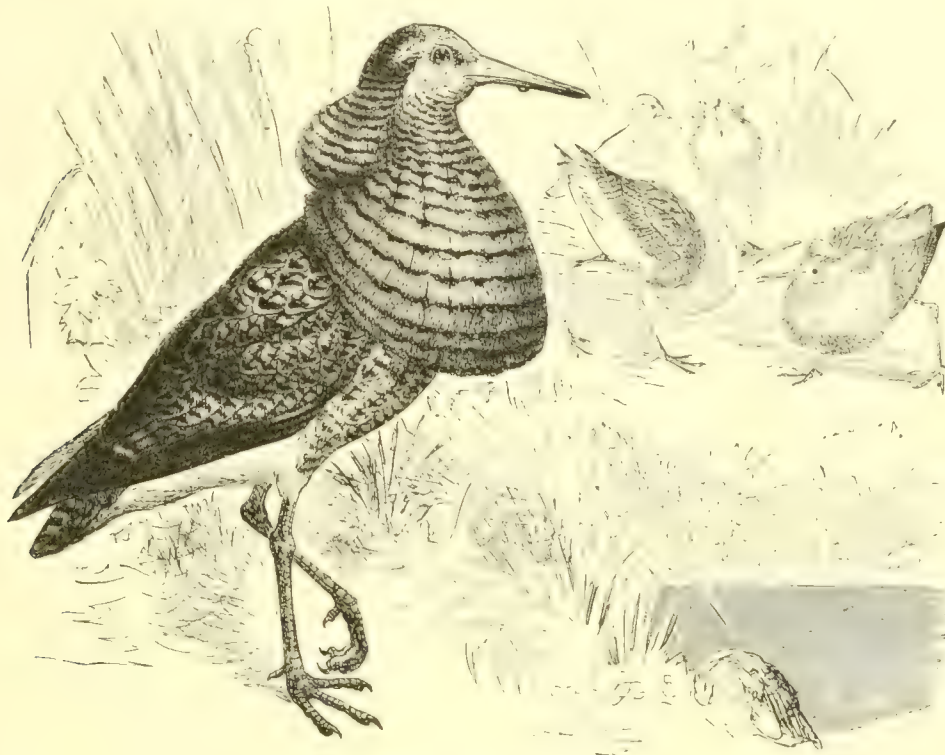
The Stilt is able to swim, but generally contents itself with wading up to its belly in water. The flight of this bird is strong, and the long legs are trailed far behind the tail, looking at a little distance as if it had carried off a piece of string fastened to its toes. Five or six

species of Stilt are known to science. The eggs of the Stilt are of a bluish hue, covered with streaks and blotches of dusky green and dark brown.

The greater part of the plumage of this bird is white, but the back and wings are of a deep black with a gloss of green. In the female the black takes a brownish tone. The beak is black, the eggs red, and the legs and toes pink. The total length of this bird is about thirteen inches.

LIKE many other birds, the RUFF depends for its existence upon marshy and uncultivated grounds.

It is one of the migratory species, arriving in this country in April and leaving by the end of September. Formerly it was so common in the fenny districts that six dozen have been taken by one bird-catcher in a single day. The flesh of these birds is remarkably excellent, and they fatten fast, so that the trade of catching and fattening Ruffs was at one time a very



RUFF.—*Machetes pugnax*.

lucrative occupation, though it now hardly repays the trouble, time, and expense. So readily can these birds be fattened, that a Ruff weighing only six ounces when first placed in the cage, will weigh ten when removed for the table. Generally the young birds of the first year are chosen for slaughter, as they are more tender and bear captivity better than the older birds. As soon as captured the Ruffs will begin to eat, and if a basin of food be placed among a number of these birds they will fight so eagerly for it that each bird would starve rather than allow any but itself to partake of the provisions. The feeders, therefore, humor their selfish disposition by placing several dishes of food in the cages and filling them all.

THE KNOT, so called in honor of King Knut, or Canute as the name is generally spelled, is one of the members of the interesting genus *Tringa*.

This pretty bird is found in varying numbers, at one season flying and settling on the shore in flocks of a thousand or more in number, and at another being so scarce that hardly one bird can be seen where a hundred had formerly made their appearance. Mr. Thompson mentions that he has seen them in such profusion, that upwards of one hundred and seventy were killed at a single discharge from a swivel-gun. Sometimes they are silent while on the

ground, but at others they utter a peculiar chucking kind of note, which seems to indicate their position to the expectant female.

The Knot loves to feed on the large expanses of sea-grass (*Zostera marina*) which are left bare by the receding tide, and is often found with a mixed assembly of godwits, dunlins, and redshanks.

The Knot is also called Robin Snipe (*Tringa canutus*), and Red-breasted Sandpiper, and Ash-colored Sandpiper. It is found in the northern portion of both hemispheres—Australia, New Zealand, and South America. During winter it is abundant along the Atlantic coast, but is rare in the interior, and westward. Its breeding places are far north, in the utmost habitable limits of the Arctic Circle. The eggs are five in number, and are merely laid on a tuft of grass.

The regularly disposed concentric semicircles of white and dark brown that mark the upper parts of the plumage of this species, distinguish it from all others. When attired in its full summer plumage the male Knot is a really handsome bird. The sides of the head are bright chestnut with a few dark spots, and the top of the head is a deeper chestnut with dark brown streaks. The upper part of the back is richly mottled, the centre of each feather being black, and the edges warm chestnut and white. The greater wing-coverts are ashen-gray, the primaries black with white shafts, the secondaries edged with white, and the upper tail-coverts rusty-white, edged with white and barred with black. The tail is dark ash edged with white, and the under surface is warm ruddy chestnut fading into white on the under tail-coverts. After the breeding season all the rich warm tints are lost, and the bird assumes a sober dress of ashen-gray above, black wings, and the under surface white streaked with gray. The length of the Knot is about ten inches.

In activity, it is superior to the preceding; and traces the flowing and recession of the waves along the sandy beach with great nimbleness; wading among the loose particles for its favorite food, which is a small, thin, oval bivalve shell-fish, not larger than the seed of an apple. These usually lie at a short depth below the surface. They constitute the food of this bird, and render it very fat. It is a pleasing spectacle to watch groups of these birds follow adroitly the line of breaking surf, busily engaged in picking up their choice morsels as they are separated from the sand and are rolled inward on the tide. The length of this bird is ten inches; the extent of wing, twenty inches.

PURPLE SANDPIPER (*Arquatella maritima*). This species inhabits the whole of North America, particularly on the sea-coast. It is migratory, and winters within the United States, breeding in high northern localities only. It is also found in Europe and Asia. Though its name would indicate its maritime habits, yet it is often seen on the margin of the Great Lakes. It is said to be very common on the shores of Lake Michigan. In New England it is rather abundant; frequenting the rocky shores where the sea-weed grows, rather than the sandy beaches.

ANOTHER species, of late determination, is called the ALEUTIAN SANDPIPER (*Arquatella couesi*), found on the northwestern coast.

Another from the same region is named PRYBILOV SANDPIPER (*Arquatella ptilœnensis*).

THE SHARP-TAILED SANDPIPER (*Actodromas acuminata*) is a late addition to the American bird fauna.

THE PECTORAL SANDPIPER (*Actodromas maculata*) is a familiar species, and common to the whole continent. It is also found in Europe. It is called variously Grass Snipe, Jack Snipe, and Meadow Snipe. Its game-like habits render it a favorite with the sportsmen. In summer it is abundant in Labrador, where it frequents low, muddy flats. When it arises from the grass to alight again at a little distance, it flies in silence, and utters a single *tweet*; the wings being deeply incurved; but when suddenly startled, and much alarmed, it springs quickly, with loud repeated cries, and makes off in a zig-zag, much like the common Snipe.

Sometimes gaining a considerable elevation, it circles for several minutes in silence overhead, flying with great velocity, perhaps to pitch down again nearly perpendicularly to the same spot it started from.

The migration southward occurs in August, and at about the first of April it leaves for the north. A form of this seen on Long Island occasionally has been called Cooper's Sandpiper.

Unlike most Sandpipers, it does not flock to any extent; being oftenest seen singly or in pairs. In the United States it is mostly a bird of passage, though a few winter in the Southern States.

BONAPARTE'S SANDPIPER (*Tringa fuscicollis*), called also the White-rumped Sandpiper, inhabits the eastern portion of North America, or east of the Rocky Mountains, breeding in the far north. It is migratory through the Eastern United States, wintering in the South. It is also found in Greenland, West Indies, Central and South America. It is very abundant along the entire Atlantic coast, and readily distinguished by its white upper tail-coverts.

BAIRD'S SANDPIPER (*Tringa bairdi*). This bird has only lately been introduced into our fauna. Specimens were found in Alaska and Arctic America, where they breed. It is found in the interior east of the Rocky Mountains, and has been regarded as a stranger to the Atlantic coast, though one specimen has lately been found there. Dr. Coues met with it in Dakota, during August, associated with the Red-breasted Snipe and Wilson's Phalarope.

LEAST SANDPIPER (*Actodromas minutilla*). This little bird is found in every part of the American continent, and is sometimes noticed in Europe. It resides chiefly among the seamarshes, and feeds on the mud-flats at low water. It is not altogether confined to the neighborhood of the sea. It is abundant in the Missouri region during migration.

The popular name *Teet* or *Peep* is applied to it in every portion of the globe where it is found. Besides being gregarious among themselves, the Peeps are sociable with other shore birds; and there is not often seen a group of beach-birds that has not more or less numbers of this bird.

Dr. Coues pleasantly says of them: "Gadabouts they may be, but no scandal-mongers; ubiquitous, turning up everywhere when least expected, but never looked ill upon; bustling little busy-bodies, but minding their own business strictly. Besides environing a continent on three sides at least—and perhaps on the Arctic shores as well—not a river or lake, not a creek or pond, the banks of which are not populated at one season or another; the track of their tiny feet, imprinted on the sand of the sea-shore, and the soil of the inland water, shows where they have been. Their numbers swell in no small degree the great tide of birds, that ceaselessly ebbs and flows once a year, in the direction of the polar star; they taken away, a feature of the land would be lost. Altogether, they become imposing, though singly insignificant. If we do not know just what part is given out to them in the grand play of Nature, at least we may be assured they have a part that is faithfully and well performed."

Wilson says: "This is the least of its tribe in this part of the world, and in its mode of flight resembles the snipe more than the Sandpiper. It springs with a zig-zag, irregular flight, and feeble twit. It is not entirely confined to the neighborhood of the sea. Its length is five inches and a half, and extent of wing eleven inches. The sexes are very closely alike.

THE PIGMY CURLEW, OR CURLEW SANDPIPER (*Pelidna subarquata*), is so called on account of the form of its beak, which bears some resemblance to that of the Curlew, although it is much smaller and not so sharply curved.

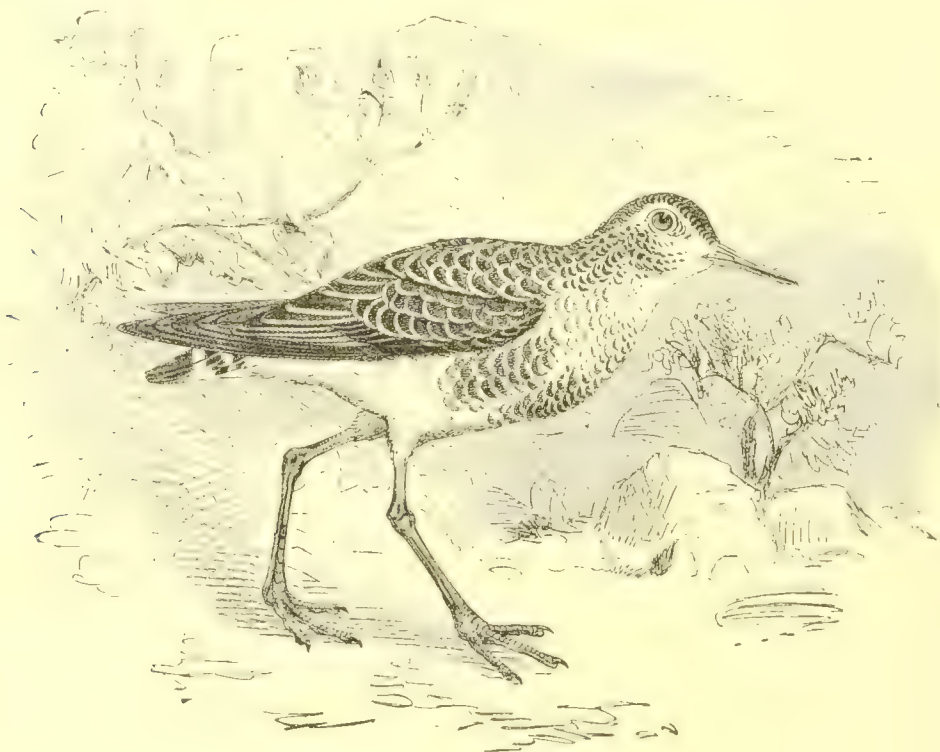
Mr. Thompson remarks that "as it appears on the shore it is a graceful, pretty bird, and particularly interesting from presenting so pleasing a miniature of the great Curlew. I have often known the Pigmy Curlew to be killed in company with dunlins, occasionally with them and ring dottrells, once with those two species and godwits, in a single instance with red-shanks and knots." In some years these birds are more plentiful, and may be seen in little

flocks of thirty or forty in number. Sixty were once killed at a single shot in a harbor in the month of October.

The Curlew Sandpiper is regarded as very rare in America; indeed, it is scarcely more than a straggler along the Atlantic coast. It is found in most parts of the Old World.

SEMI-PALMATED SANDPIPER (*Ereunetes pusillus*). The *habitat* of this species is the whole northern and a portion of the southern continent. It is abundant and well known on the Atlantic coast. It is one of the smallest of its tribe; the length being six inches, and extent of wing twelve. The males and females are alike in coloration. Though properly a sea-shore bird, it is occasionally seen on the shores of inland lakes. It is seen in the Missouri region during migration. Its half-webbed feet, which gives it a specific name, readily distinguish it. The birds vary greatly in size. In general appearance they resemble the stints or peeps.

A variety, called the Western Sandpiper, is found in the Western States.



SANDERLING. — *Calidris arenaria*.

THE SANDERLING (*Calidris arenaria*), called also Ruddy Plover. This bird has an extended *habitat*, covering the coasts of all countries. It visits New England during the latter weeks of summer, after the breeding season in the far north. While feeding on the beaches it utters a plaintive whistle. It is abundant on the coast generally. The length of body is eight inches, and extent of wing fifteen inches.

TEMMINCK'S STINT is remarkable for being the smallest of the European Sandpipers, the average length being about five inches and a half.

This little bird is rarely found on the far northern coasts, preferring inland rivers and sheets of water, where it feeds upon worms and aquatic insects. It is said by Nilsson to breed on the shores of the seas of northern Europe.

THE DUNLIN is known under a variety of names, such as the Stint, the Ox-bird, the Sea-snipe, and the Purre, the last of which is the most common.

This bird is the commonest of the sea-loving Sandpipers, and comes to the shores in large flocks, keeping close to the edge of the waves, running along the sands and pecking eagerly at the mollusks, worms, and smaller crustacea, which are so plentiful on the margin of the retiring waves. They are nimble-limbed birds, always on the move, and are sure to be either engaged in running about after food or flying from one feeding-place to another. While flying they present rather a curious aspect, as they seem to change from white to black alternately, according to the point of view in which they are seen; their dark backs and white under surfaces contrasting boldly with each other.

The Dunlin is occasionally found in America, and a variety is resident, called Black-bellied, and also Red-backed Sandpiper. It is found along the whole Atlantic coast. It migrates, wintering in the States, and breeds far north. It has been found as far west as Leavenworth. Wilson says the name is Gray-back with sportsmen, and that it is a particular favorite with them. It associates in small flocks, alighting in close bodies together on the flats, where it finds small mollusca to feed upon. It is less timid than other species, standing unconcernedly for a time on the approach of the sportsman. In November it migrates for the South. The length of body is ten inches, extent of wing twenty inches. The sexes are alike in general appearance.

THE GREAT SNIPE may even on the wing be distinguished from the common species, by the peculiar, fan-like shape of the tail. While flying it hardly looks larger than the common Snipe. It is not readily roused from the ground, but will permit itself to be almost trodden on before it will rise, trusting to its brown mottled plumage, which harmonizes so well with the ground that the bird is not readily perceived. When flushed, it only flies to a little distance, and then settles among heather or rank grass. The flesh of this species is very good, as the bird becomes exceedingly fat when it finds a good feeding-place, so much so, indeed, that it can hardly fly, and, according to Mr. Grieve, is in autumn so fat that it almost bursts its skin.

THE COMMON SNIPE is too well known to need much description. Its habits, however, are interesting, and deserve some notice.

This bird may be seen all over Europe, wherever damp and swampy places are found. When first flushed, it shoots off in a straight line for a few yards and then begins to twist and turn in a strangely zigzag fashion, and at last darts away, thereby puzzling juvenile sportsmen greatly, and often escaping before its enemy has got his aim.

The nest of the Snipe is a simple heap of leaves placed under the shelter of a tuft of furze, heath, or grass, and the eggs are four in number of an olive-white, spotted and dashed with brown of different tones towards and upon the large end. The mother-bird has been known to carry away her young when threatened by danger.

The coloring of the Common Snipe is briefly as follows: The top of the head is dark brown; a light brown streak runs along the centre; the cheeks are pale brown with a dark streak from the bill to the eye, and over the dark streak is another of a paler hue. The back is beautifully mottled with two shades of brown, and four bold lines of warm buff run along the upper surface of the body. The wings are black, some of the feathers being tipped with white. The chin is very pale brown, the neck is also light brown, but spotted with a darker hue; the breast and abdomen are white, and the flanks gray-white with dull black bars. The under tail-coverts are cream-colored with a brown tinge and barred with gray-black. The average length of the Snipe is between ten and eleven inches.

The English Snipe is the name this bird bears in America, as it is an occasional visitor here.

WILSON'S SNIPE (*Zallinago wilsoni*) is now regarded as a variety of the preceding. Its range is throughout the whole of North America, and southward to South America, Mexico, and the West Indies. It breeds from northern New England northward. It is a migrant through the region of the Missouri, though it is thought that some winter in the southern portions.

The nest of this Snipe is a mere depression in the grass, or moss of a meadow.

Wilson says of this bird, which was named in his honor: "It arrives in Pennsylvania about the 10th of March, and remains in the low grounds for several weeks; the greater part then move off to the north, and to the higher inland districts, to breed in our low marshes during the summer. Great numbers of these birds winter in the rice grounds of the Southern States, where, in the month of February, they appear to be much tamer than they are here in the north. On the 20th March I found them extremely numerous about the borders of ponds of Louisville, Kentucky. They have the same soaring, irregular flight in the air in gloomy weather as the English Snipe; the same bleating note and occasional rapid descent; spring from the marshes with the same feeble squeak; and in every respect resemble the latter bird, except in being about an inch less, and in having sixteen feathers in its tail instead of fourteen.

This Snipe is eleven inches long, and seventeen in extent of wing. The sexes are much alike, save that the colors of the female are somewhat more obscure and less defined than in the male.

THE RED-BREASTED SNIPE (*Macrorhamphus griseus*), called also Brown-back, Gray Snipe, and Dowitcher, inhabits the whole of North America, Greenland, and Mexico, West Indies, Central America, and much of South America. It is occasionally seen in Europe. Distinguished from the former, it has longer legs, and a web between outer and middle toes, twelve instead of sixteen tail-feathers, and some other less important characters.

In migrating, this Snipe moves in vast numbers northward in April, where they breed, returning in August.

Dr. Coues met with the Gray-backs in considerable numbers in Dakota. He found it unsuspicious and gentle, sociable in company with other waders and with various sea-fowl that congregate on the borders of the great lakes and rivers of the West, where they congregate, probing here and there the mud-flats for food, sticking their bills perpendicularly into the soil the full length with a quick, dexterous movement, and sometimes even submerging the whole head for a moment. All the while they chat with each other in a low, pleasing tone. When fired at, notwithstanding some of their companions may lie dead, or in the agonies of death, the flock returns to the same spot. They are singular for their flying so compactly in groups, and for massing closely on alighting. Being partly web-footed, they are good swimmers for short distances. When feeding undisturbed they are extremely pleasing in appearance, and their movements are very graceful. Wilson describes their movements as follows: "They fly very rapidly, sometimes coursing, wheeling, and doubling along the surface of the marshes; then shooting high in air, then separating and forming in various bodies, uttering a kind of quivering whistle."

This Snipe is ten inches and a half long, and eighteen inches in extent of wing. The female is paler on the back than its mate. The breeding occurs not far north of the United States. Of all our seaside Snipes it is the most numerous, and is highly prized as a delicacy.

Another form of this species, regarded as a variety, is called the GREATER GRAY-BACK and RED-BELLIED SNIPE (*M. griseus scolopaceus*).

THE little JACK SNIPE is seldom seen in northern countries except in the winter, and is remarkable for its tenacity in clinging to the ground even on the near approach of an enemy. Terror seems to have some part in this propensity, for Mr. Yarrell remarks that a Jack Snipe has allowed itself to be picked up by hand before the nose of a pointer. It has also a strong attachment to localities, adhering closely to one spot, and always returning to the same place after a while. It is not an easy bird to shoot unless taken at the rise, when there is danger that so diminutive a bird may be blown to pieces by the first discharge, for it dodges about and skims just over the heather, in a vastly perplexing manner. There is a story told of a gentleman not remarkable for his skill in shooting, who was found lamenting over the corpse of a Jack Snipe which he had succeeded in killing, and whose death had deprived him of the amusement which he had enjoyed for many weeks, as the bird could always be found in



SELMAR HESS, PUBLISHER, N. Y.

WOODCOCK.

the same place every morning, and be hunted up and down all day without going out of the grounds.

The plumage of the Jack Snipe is very like that of the common species, but may be at once distinguished by the absence of the pale brown streak over the top of the head.

THREE more species of Snipe are known in Europe, but are very scarce. One is the SABINE'S SNIPE (*Gallinago sabinii*), notable for the total absence of white upon its plumage; the second is the BROWN, or RED-BREASTED SNIPE (*Gallinago grisea*), properly an American bird, and distinguishable by the ruddy breast and the streak of white from the bill to the eye; and the third is rather a dubious species, known by the name of BREHM'S SNIPE (*Gallinago brehmi*).

THE WOODCOCK is nearly as well known, though not so plentiful as the snipe, to which bird it bears a considerable resemblance in form, plumage, and many habits.

Generally, it is only a winter visitor to northern countries, arriving about October, and leaving in March or April. Sometimes, however, it will breed in northern regions, and there remain throughout the summer. During their migration the Woodcocks fly at a great altitude, and descend almost perpendicularly upon the spot where they intend to rest. They fly in companies of varying numbers, and prefer hazy and calm weather for their journey.

The general color of the Woodcock is brown of several shades, pale wood-brown upon the cheeks, rich dark brown upon the back, mottled with a lighter hue; throat, breast, and abdomen, wood-brown barred with dark brown. The tail is black above, tipped with gray. The average length is about fourteen inches, but the weight is extremely variable. An ordinarily good bird weighs about thirteen ounces, but a very fine specimen will weigh fourteen or fifteen ounces, and there are examples of Woodcocks weighing twenty-six and twenty-seven ounces.

THE AMERICAN WOODCOCK (*Philohela minor*) is not only distinct as a species from the European, but is properly generically distinct. The European bird is occasionally shot by our market gunners. It is readily distinguished by its larger size and lighter-colored plumage. Dr. Coues says of the American Woodcock: "The restriction of the range of the Woodcock is a singular circumstance in the history of a family of birds noted for their dispersion and extensive migrations. It is only known to inhabit the United States and immediately adjoining portions of the British possessions, while in the West its extension is equally limited."

The fact that this bird's nest and eggs are so seldom seen is a singular one, considering the thousands of acute observers and sportsmen who habitually handle the bird, and see it in its native haunts; yet the bird breeds in greater or less abundance over nearly all its range, and especially in the Middle and Eastern States.

The Woodcock is an early layer, beginning in March, and in the South in February.

"At the breeding season," says Audubon, "its curious, spiral gyrations, while ascending or descending along a space of fifty or more yards of height, when it utters a note somewhat resembling the word *kwank*, are performed every evening and morning for nearly a fortnight. When on the ground at this season, as well as in autumn, the male not unfrequently repeats this sound, as if he were calling to others in his neighborhood, and on hearing it answered he immediately flies to meet the other bird, which in the same manner advances toward him. On observing the Woodcock in the act of emitting these notes, you would imagine he exerted himself to the utmost to produce them, the head and bill being inclined toward the ground, and a strong forward movement of the body taking place at the moment the *kwank* reaches your ear. This over, the bird jerks its half-spread tail, then erects itself, and stands as if listening for a moment, when, if the cry is not answered, it repeats it." Audubon thought this was the cry to attract the female, yet he noticed it sometimes brought forth a rival male.

Though the Woodcock is generally regarded as an inhabitant of boggy swamps, yet it frequents corn-fields, and other cultivated portions of country. If the season is not very severe, a few birds linger during the winter, but usually they are ready to migrate south-

ward by the coming of frost. March and October are the months during which they generally migrate. Some continue residing in the South.

THE GRAY PHALAROPE (*Phalaropus fulicarius*) is one of the rare birds, belonging rightly to the limits of the Arctic circle, and coming southward in the autumn.

It is a light and active bird, flying and swimming with great address, and braving the raging sea with easy courage. The body of this bird is singularly buoyant, so that the Phalarope rides on the waters like a cork, bidding defiance to the waves, and circling about the surface with an ease and rapidity that reminds the observer of the whirligig beetles that urge their ceaseless wheels on the surface of our shady streams. It is a bold bird, caring little for the presence of human beings, and suffering itself to be approached without displaying fear. Moreover, when made prisoner it becomes familiar with its captor in a very short time, and in a few hours will eat out of his hand. The general food of the Gray Phalarope consists of marine creatures, such as mollusks and little crustaceans, but when it comes to the shore the bird will feed on larvæ and various insects. While swimming it has a habit of nodding its head at each stroke. The flight is said to resemble that of the terns.

The plumage differs greatly according to the season of year. In the winter, the head, back of the neck, and back are dark blackish-brown, and these feathers are surrounded by an orange border. There is a white band on the wing, and the front of the neck and lower parts of the body are dull red. In the winter, the upper parts of the body are pearly-ash, the centres of the feathers being darker than their edges. The white band on the wing is retained, and the breast and lower parts are pure white. The bill is brown at the point, and orange-red at the base. The Gray Phalarope is but a small bird, its length being about eight inches. The Red-necked Phalarope (*Phalaropus hypoboreus*) is also an inhabitant of Europe.

THE RED PHALAROPE (*Phalaropus fulicarius*). The range of *habitat* of this bird is essentially the same as that of the northern. It is particularly a maritime bird, and seldom is seen in the interior. It is known as Red Phalarope in America. It is, however, mentioned by Ridgway as seen in Illinois and Ohio. Its length is about nine inches, and extent of wing fifteen. Authors speak of the other species of Phalarope turning to look at the intruder. Wilson says of this species: "I was particularly struck with its peculiar manners. It was sitting on the water and dipping its bill in as if feeding, and turning frequently around."

THE MEXICAN JACANA (*Parra gymnosoma*) is an occasional visitor in the southwestern portions of the United States. The Jacanas are remarkable for the extraordinary development of their toes, which are so long and so slender that they seem to have been drawn out like wire, and to impede the progress of their owner. These elongated toes are, however, of the greatest use, as they enable the bird to walk upon the floating leaves which overspread the surface of many rivers, and to pick its food from and between the leaves on which it walks. As the bird marches upon the leaves, the long toes dividing the pressure upon several leaves at each step, they are slightly sunk below the surface by the weight, so that the bird appears to be really walking upon the water.

THE COMMON JACANA is a native of Southern America, and there other species scattered over Africa, Asia, and Australia. Mr. Gould tells us that the Australian species is a good diver, but a bad flyer. "Their powers of diving and of remaining under water are equal to those of any bird I have ever met with; on the other hand, the powers of flight are very weak. They will, however, mount up fifteen or twenty yards and fly from one end of the lake to the other, a distance of half or three-quarters of a mile; but generally they merely rise above the surface of the water and fly off for about a hundred yards. During flight their long legs are thrown out horizontally to their full length. While feeding, they utter a slowly-repeated 'cluck, cluck.' The stomach is extremely muscular, and the food consists of aquatic insects and some kind of vegetable matter."

The general color of the Common Jacana is black, with a slight greenish gloss, taking a rusty red tinting on the back and wing-coverts. The primary quill-feathers of the wing are green, and the wings are furnished at the bend with long and sharp claws. In the African species these spurs are hardly perceptible. At the base of the beak is a curious feathery appendage, rising upon the forehead above and depending towards the chin below. The claws are all very long, especially that of the hind toe, which is nearly straight, and longer than the toe from which it proceeds.

THE pretty CHINESE JACANA well deserves the title of *Hydrophasianus*, or Water Pheasant, a name which has been given to it on account of the two long tail-feathers which droop gracefully in a gentle curve. The quill-feathers of the wings are also remarkable for certain little appendages, like hairy plumes, which proceed from the tip of each shaft.

The Chinese Jacana, or MEEWA, is not confined to the country from which it derives its popular name, but is found in various parts of Asia, and has been obtained from the Himalayas and the Philippines.



JACANA.—*Parra jacana*.

It is a very active bird on foot, or in the water, swimming with easy grace, and traversing the floating herbage in search of its food, which resembles that of most aquatic birds. A tamed specimen fed readily on shrimps. It is not very fond of using its wings, but when flying, extends the legs backwards after the same fashion as the heron. The flesh of the Chinese Jacana is very excellent, and has been likened to that of the snipe, so that the bird is in some request among sportsmen. Shooting it is, however, no very easy task, as a wounded bird is seldom if ever recovered, diving at once and remaining submerged until the foe has left the spot, or death has released it from its sufferings.

The nest of the Chinese Jacana is made of reeds and grasses, is flat in form, and is supported upon the woven stems of aquatic plants. The eggs are about six or seven in number, and their color is olive-brown. These birds breed during the rains, and choose those spots where the lotus is plentiful. The voice resembles the mewing of a distressed kitten, to which fact is owing its native name of Meewa.

The colors of the male bird are bold and striking. The back and under parts are deep chocolate-brown, the elongated tail is a still darker brown; and the wings, top of the head, throat, and part of the neck are white. The back of the neck is orange, and a narrow black line separates it from the white of the throat. The legs, toes, and beak are grass-green. At the end of the primary feathers are certain filamentous and somewhat lancet-shaped appendages, which, according to some writers, hinder the bird in its flight. The female is quite sober in her plumage. The upper part of the body and head is pale brown, warming to red on

the forehead. From the bill a dark streak passes through the eye and down the side of the neck, and above that is another streak of buffy orange. The throat and under parts are white, and a broad collar of dark brown encircles the junction of the neck and breast.

THE sub-family of the Screamers is here represented by two very curious birds, both of them being large birds, having their wings armed with formidable claws capable of being used with much effect as weapons of offence.

THE HORNED SCREAMER, or KAMICHI, is a native of Central America, and is found in the vast swamps and morasses of that hot and moist country, where the vegetation springs up in



HORNED SCREAMER.—*Pulamedea cornuta*.

gigantic luxuriance and the miasmatic morasses give birth to reptiles and creeping things innumerable. The large spurs on the wings are valuable to the bird in repelling the attacks of the numerous snakes, and guarding itself and young from their rapacity. In size the Horned Screamer nearly equals a common turkey, so that a blow from its armed wing can be struck with considerable force. The bird is not, however, fond of using its weapons, and unless attacked, is quiet and harmless.

The food of the Horned Screamer consists chiefly of vegetable substances, such as the leaves and seeds of aquatic plants, in search of which it wades through the reptile-haunted morasses. Its flight is strong and easy, its walk is erect and bold, and its mien lofty like that of the eagle. Upon the head of the present species is a curious horn-like appendage, from three to four inches in length, and about as large as a goose-quill. The use of this horn is quite unknown. The voice of the Horned Screamer is loud and shrill, and is uttered suddenly and with such vehemence that it has a very startling effect.

The general color of this bird is blackish-brown above; the head and upper part of the neck are covered with downy feathers of blackish-brown sprinkled with white.

ANOTHER well-known example, the CRESTED SCREAMER, or CHAJA, is a finer-looking bird than the preceding species, though its head is without the singular appendage that gives the Horned Screamer so unique an aspect. The name of Chaja is given to this bird on account of its cry, that of the male bird being "chaja" and of the female "chajali."

It is a native of Brazil and Paraguay, and is generally found near the banks of rivers. It is a shy and generally solitary bird, being mostly seen singly, sometimes in pairs, and now and then in small flocks. Like the horned Screamer, the Chaja is armed with two spurs on each wing, and can employ them to such purpose, that it can drive away even a vulture. Unless attacked, however, the bird is quiet, and as it is easily tamed, it may be often seen domesticated in the houses.

The walk of this bird is bold and dignified; the body is held rather horizontal and the head and neck erect. The flight is strong and sweeping, and the bird rises on circling wings somewhat after the manner of the eagle, after obtaining so great an elevation as to be hardly discernible against the sky. The food of the Chaja consists mostly of aquatic plants, which it obtains by wading. The nest of this bird is a rather large edifice of sticks and leaves, and is placed near water. The number of eggs is two, and the young are able to follow their parents almost as soon as hatched.

The general hue of the Chaja is a leaden-blue color, diversified with black. The bend of the wing is white, and there is a large spot of the same hue at the base of the primaries. Round the neck is a black collar, the small head is furnished with a crest, the upper part of the neck is clothed with down, and the space round the eye is naked and blood-red in color.

WE now come to the large family of the Rails, a curious group of birds, formed for rapid movement either on the ground or through the water, but not particularly adapted for long flights. Many species inhabit Europe.

The WATER RAIL, one of the examples of this family, is but seldom seen, partly because it really is not very plentiful, and partly on account of its shy and retiring habits, and its powers of concealment. It frequents ponds, lakes, and similar localities, haunting those places where luxuriant reed-beds afford it shelter and covert. On the least alarm it sets off for the place of refuge, diving to a considerable distance and always pressing towards the reeds, through which it glides with wonderful address, and is immediately out of danger. Even a trained dog can hardly flush a Water Rail when once it has reached its reedy refuge, as the bird can thread the reeds faster than the dog can break its way through them, and has always some deep hole or other convenient hiding-place where a dog cannot reach it.

The food of the Water Rail consists mostly of insects, worms, leeches, mollusks, and similar creatures, all of which can be found either upon the aquatic herbage or in the muddy banks. Mr. Thompson mentions a curious instance of the readily domesticative and insect-hunting propensities of this bird. "Some time ago I saw in a gunsmith's shop, one of these birds, which had been taken alive a day or two before. It was very expert in catching flies in the shop window, running a tilt at them quite regardless of the presence of the stumbling-blocks which beset its path in the form of pistols, turn-screws, etc. When approached, this bird struck wickedly with its bill and feet, but never with its spurred wings." In the stomach of these birds the same writer found the remains of aquatic mollusks, worms, and a few seeds, and portions of leaves. In captivity it will thrive on raw meat chopped small.

While walking, the bird has a habit of flirting up its odd little tail, so as to show the white under tail-coverts. The nest of the Water Rail is sheltered by the thickest herbage of the covert, and is made of coarse grass. There are about seven or eight eggs, and their color is buffy-white spotted with brown. The young are odd little creatures, round, and covered with soft thick down. Almost immediately after their emancipation from the egg-shell, these little puffy balls of down tumble into the water, and swim about as merrily as if they had been accustomed to the exercise for years.

The general color of the Water Rail is buffy-brown above, richly mottled with velvety-black. The throat is gray; the sides of the neck, the breast, and abdomen are slaty-gray, changing on the flanks into grayish-black barred with white and buff, and to cream-white on the under tail-coverts. The bill is brown at the tip, and light orange at the base. The length of the Water Rail is about one foot.

OF the VIRGINIAN RAIL, Wilson writes: "It is frequently seen along the borders of our salt-marshes, and also breeds there, as well as among the meadows that border on large rivers. It spreads over the interior as far west as the Ohio, having myself shot it in the barrens of Kentucky early in May. The people there observe them in wet places, in the groves, only in spring. It feeds less on vegetable and more on animal food than the common Rail. During the months of September and October, when the reeds and wild oats swarm with the latter species, feeding on their nutritious seeds, a few of the present kind are occasionally found, but not one for five hundred of the others.

"The food of the present species consists of small snail-shells, worms, and the larvæ of insects, which it extracts from the mud: hence the cause of its greater length of bill, to enable it the more readily to reach its food. On this account, also, its flesh is much inferior to that of the others. In most of its habits, its thin, compressed form of body, its aversion to take wing, and the dexterity with which it runs or conceals itself among the grass and sedge, are exactly similar to those of the common Rail."

In some parts of America it is known under the name of the Fresh-water Mud-hen, because it frequents those parts of the marshes where fresh-water springs rise through the morass. "In these places it generally constructs its nest, one of which we had the good fortune to discover. It was built in the bottom of a tuft of grass in the midst of an almost impenetrable quagmire, and was composed altogether of old wet grass and rushes. The eggs had been flooded out of the nest by the extraordinary rise of the tide in a violent northeast storm, and lay scattered about the drift-weed. The usual number of eggs is from six to ten. They are of a dirty white or pale cream color, sprinkled with specks of reddish and pale purple, most numerous near the great end."

The top of the head and the upper surface of the body are black streaked with brown; the cheeks and a streak over the eye are ashen-gray; and by the lower eyelid there is a white mark. The wing-coverts are a light chestnut, the quills are dusky black; there is a white streak on the bend of the wings; the chin is white, and the whole lower surface is orange-brown. The female may be distinguished from the male by the pale breast and the greater amount of white on the chin and throat. The average length of the adult male is ten inches, the female being about half an inch shorter.

The Virginian Rail inhabits the United States and British provinces. It breeds commonly in New England, and winters in the Southern States and beyond.

Wilson says: "This species very much resembles the European Water Rail (*Rallus aquaticus*), but is smaller. It is migratory, never wintering in the Northern or Middle States. It makes its appearance in May, and leaves for the South on the first frosts. It is not only shy, but contrives to be seldom within sight. It flies with the legs dangling, generally but a short distance, but the moment it alights runs off with great speed.

THE RED-BREASTED RAIL (*Rallus elegans*). This bird inhabits the United States, but more particularly the southern portions. It reaches on the Atlantic side as far as the Middle States, occasionally to Connecticut. In the interior it reaches Kansas and Missouri; on the Pacific side, to Oregon. It is also found in Cuba and Mexico. It winters in the Southern States. It is chiefly confined to salt marshes on the coast. At Great Salt Lake it is not uncommon.

THE CALIFORNIAN CLAPPER RAIL (*Rallus obsoletus*) is a species known to the Pacific coast. It was formerly regarded as a variety of the preceding.

THE CLAPPER RAIL (*Rallus longirostris crepitans*) is a closely allied form to the preceding. Wilson says of it: "This is a very numerous and well-known species, inhabiting our whole

Atlantic coast from New England to Florida. It is designated by various names, as Mud-hen, Meadow Rail, Big Rail, etc. Though occasionally found along the muddy shores and tide waters of our large rivers, its principal residence is in the salt marshes. It is a bird of passage, arriving on the coast of New Jersey about the twentieth of April, and retiring again about the last of September."

The shores of New Jersey seem to be a favorite breeding-place for this species, where they are regarded as being nearly double in number to any other marsh fowl. It announces its arrival by a harsh and incessant cackling, which resembles that of a guinea fowl. This noise is always greatest during the night, and loudest before a storm. The general aspect of this bird when alive is a remarkable thinness of body. This condition serves them well, as when alarmed it is enabled to rush through the thickly-standing reeds with great facility; when a fatter, or, rather, a stouter bird, would meet some resistance. In smooth water it swims well, but not fast; sitting high in the water, with neck erect, and striking with great rapidity. When on shore, it runs with neck extended, the tail erect, and frequently flirled up. On fair ground, it runs almost as fast as a man. In a long stretch, it flies with great velocity, much in the manner of a duck, with extended neck. The flesh of this bird is dry, and is not esteemed. It measures fourteen inches in length, and eighteen in alar extent. The bill is two and a quarter inches long. The sexes are closely similar.

THE CAROLINA RAIL (*Porzana carolina*), called also Sora, and Ortolan. It inhabits the entire temperate North American continent, and is especially abundant along the Atlantic coast during the migrations. It breeds from the Middle Districts northward. Winters in the Southern States, and beyond. Reaches Venezuela, several West India islands, and northward, Greenland. It is accidental in Europe. In the Mississippi region it is not noticeably abundant. About Great Salt Lake it is rather common.

Of all our land or water fowl, this bird affords the sportsman more occupation than any other. The Sora, as it is called in the reed swamps of Virginia and Carolina, is esteemed very highly as a table delicacy. For four or five weeks, these birds, during the migrating season, offer excellent sport.

In habit, this bird is timid, and fond of concealment during the day. It frequents low, marshy grounds, and runs swiftly. It runs with the body near the ground, and makes a turn with astonishing celerity. Its time for exertion is at night, when it comes forth to feed, or in the early morning, uttering the inharmonious cry that characterizes all of the species. This cry is remarkable for its seeming ventriloquial character, appearing to be about four yards off, and again in an opposite direction.

Early in August, when the reeds along the shore of the Delaware have gotten full growth, the Rails resort to them in great numbers, to feed on the seeds of this plant. They may be heard among the reeds, their voices, in great numbers, resembling the squealing of young puppies. If a stone be thrown among them, there is a general outcry of *kuk-kuk-kuk*, resembling, somewhat, the voice of a guinea fowl. Though there may be hundreds of individuals in the reeds near you, there will be none seen, so completely do they conceal themselves. Indeed, a sort of protective resemblance is noticeable in their plumage, a kind of amber-green, closely resembling the stalks of the reeds. In the fall, when the reeds have ripened, the Rails are very fat from feeding on the seeds.

This Rail is nine inches long, and fourteen in extent of wing. The males are distinguished by their ashy-blue breasts, and black throats.

Some singular habits are noticed in most of the species of Rails, that resemble the hysterical, or epileptic condition. Mr. Ord relates a circumstance: He saw, projecting from a spout in his yard, the legs of a Rail. It was taken indoors, and found to be in perfect health. While it lay quietly, Mr. Ord pointed at it, when it suddenly sprang forward, apparently much irritated, fell to the floor, and, stretching out its legs, and bending its neck until the head nearly touched the back, became to all appearances lifeless. Thinking it had injured itself, he took it up, and it was a considerable length of time before it recovered itself. On the following day, he repeated the experiment, when it suddenly retreated, ruffled its feathers,

and fell forward into the same kind of fit. This was again repeated, with like results. The editor of this edition has seen the Florida gallinule perform similar actions, which are probably akin to the feigning death among other birds, and insects.

THE LITTLE YELLOW RAIL (*Porzana noveboracensis*) is found in all parts of eastern North America, and north to Hudson's Bay. It is nowhere abundant. Winters in the Southern States.

THE LITTLE BLACK RAIL (*Porzana jamaicensis*) is found from Central America to New Jersey, although exceedingly rare out of the tropics. It is quite small, being about the size of a full-sized hen's chicken at hatching. The editor of this edition captured several at the Dry Tortugas, where they evidently came during migration, as great numbers of other species of birds did also.

Another variety, called Farallone Rail, is placed on the list of North American birds, probably from the fact of stragglers being seen.

PURPLE GALLINULE (*Ionornis martinica*). This elegant bird is native of the more tropical parts of America. In Florida it is common. Its length is about fourteen inches.

Audubon writes: "The Purple Gallinule is a constant resident in the United States, although peculiar to our Southern Districts, where I have met with it at all seasons. It is in the Floridas, the lower parts of Alabama, and among the broad marshes bordering on the Gulf of Mexico, in lower Louisiana, that I have observed its habits. Beyond the Carolinas, eastward, it is only met with as an accidental straggler. It never, I believe, ascends the Mississippi beyond Memphis, where, indeed, it is but rarely seen; but between Natchez and the mouths of the great river, it is abundant on all the retired bayous and small lakes. The southern portions of Georgia are also furnished with it, but in South Carolina it is rare. Proceeding northwestward along the Gulf of Mexico, I have found it as far as Texas, where it breeds, as well as in Louisiana, where I observed it coming from the South, in May.

"Having studied the habits of this bird under every advantage in Louisiana, and especially in the neighborhood of New Orleans and the mouths of the Mississippi, I will now describe the results of my observation. In the summer months, the Purple Gallinules remove with their broods to the prairies, or large savannas bordering the bayous or lakes on which they have bred, and remain in those places, which are generally covered with thick and tall grass, until the beginning of September, when the vegetation having been dried up by the intense heat and drought, neither food nor sufficient concealment can be obtained. The young birds usually abandon these plains first, and while the color of their plumage is still green, instead of purplish-blue, which tint, however, is assumed before the return of spring. During all this while, its notes are as frequently heard as during their breeding season. They resemble the delicate, whistling sounds of the blue-winged teal during its residence with us. At this season, also, its flesh is best, although it never equals that of the Fresh-water Marsh-hen (*Rallus elegans*), or of the Sora Rail (*Rallus carolinus*).

"On the approach of winter, all the Purple Gallinules leave the savannas, and betake themselves to the immediate vicinity of ponds, bayous, or rivers, where, through experience, they become shy, vigilant, and cunning. They seldom remove from one place to another, or travel at all unless by night, although in sequestered parts they feed both on land and on the water by day.

"The Purple Gallinule breeds at a remarkably early period of the year. I have found young birds in their jetty-down clothing in February, and they have been observed in the same month by the keepers of the light-house at the northwest pass of the Mississippi, at Key West, and in other places. The parent birds are sometimes so very intent on saving their young, as to suffer themselves to be caught. At this period, their calls are almost incessantly heard during the whole night, and are elicited during the day by any musical or remarkable noise. The nest is generally placed among a kind of rushes that are green at all seasons, round, very pithy, rarely more than five feet high, and grow more along the margins of ponds

than in the water itself. The birds gather many of them, and fasten them at the height of two or three feet, and there the nest is placed. It is composed of the most delicate rushes, whether green or withered, and is quite as substantial as that of the common Gallinule, flattish, having an internal diameter of eight or ten inches, while the entire breadth is about fifteen. The eggs, which are from five to seven, rarely more, are very similar to those of the common Gallinule, being of a light grayish-yellow, spotted with blackish-brown. The young are at first quite black, and covered with down. They are fully fledged by the first of June, when, as I have said, they and their parents remove to the wet savannas in the neighborhood.

“The jerking motions of the tail of this bird, whenever it is disturbed, or attracted by any remarkable object, are very quick, and so often repeated as to have a curious appearance. It runs with great speed, and dives with equal address, often moving off under water with nothing but the bill above. The lightness and ease with which it walks on the floating plants are surprising, for in proceeding they scarcely produce any perceptible disturbance of the water. When swimming in full security, they move buoyantly and gracefully, throwing the head forward at every propelling motion of the feet. The flight of this species is less swift than that of the common Gallinule, or of the Rails, unless when it is travelling far, when it flies high, and advances in a direct course by continued flappings; but when it is in its breeding or feeding grounds, its flight is slow and short, seldom exceeding thirty or forty yards, and with the legs hanging down, and it alights among the herbage with its wings spread upwards, in the manner of the Rails. It often alights on the low branches of trees and bushes growing over the water, and walks lightly and gracefully over them.

“It is seldom that more than one Purple Gallinule is shot at a time, unless in the beginning of the love-season, when the male and female are apt to swim or walk close together. The male at this period is said to be able to inflate the frontal plate while strutting, but I have never been fortunate enough to observe this.

“The Purple Gallinule not unfrequently alights on ships at sea. While at the Island of Galveston, I was offered several live individuals, by the officers of the Boston frigate, which they had caught on board. My friend, John Bachman, once received three specimens that had been caught three hundred miles from land, one of them having come through the cabin window. He also obtained from the Hon. Mr. Poinset a fine specimen caught on board, on the Santee River, in South Carolina, in May. It is easily kept alive, if fed with bread soaked in milk; and on this food I have known several that remained in good health for years. In Louisiana, where it is called *Rale Bleu*, its flesh is not held in much estimation, but is used by the negroes for making gombo.

“My friend Bachman considers this species as rather scarce in South Carolina and Georgia, but states that it breeds there, as he has occasionally observed pairs on the head-waters or preserves of rice plantations during summer, but never met with any in winter. The extreme limit of its range eastward is the neighborhood of Boston, where a few individuals have been procured.”

THE FLORIDA GALLINULE (*Gallinula galeata*) is a more sober-colored bird, inhabiting about the same regions as the preceding.

THE CORNCRAKE (*Crex pratensis*) is occasionally seen in America, and is therefore enumerated in the list of North American birds.

THE well-known CORNCRAKE, or LANDRAIL, is common in almost every part of Europe, its rough, grating call being heard wherever the hay-grass is long enough to hide the utterer.

The bird runs with wonderful speed through the tall grass, and its cry may be heard now close at hand, now in the distance, now right, and now left, without any other indication of the bird's whereabouts; for so deftly does it thread the grass-stems that not a shaken blade indicates its presence, and it is so wary that it keeps itself well hidden among the thick herbage. The cry of the Corncrake may be exactly imitated by drawing a quill or a piece of

stick smartly over the large teeth of a comb, or by rubbing together two jagged strips of bone. In either case the bird may be decoyed within sight by this simple procedure.

The Corncrake is not fond of its wings, and very seldom takes to the air, even preferring to be caught by the dog than to escape by flight. When captured it has a habit of simulating death, and often contrives to escape when the eye of its captor is otherwise engaged. One of these birds, which had been picked up by a pointer, allowed itself to be placed in the game-bag, carried home, and laid on the table without exhibiting any indications of life. When it thought itself unwatched, it sprung up and dashed at the window, which, being closed, frustrated this poor bird in its bold attempt.

The Corncrake can be readily tamed, as will be seen by the following account by Mr. Thompson: "It became quite tame and partook of food very various in kind, such as groats (few, however, of these), raw meat, bread and milk, stirabout and milk, yolk of boiled eggs and butter, which last was especially relished. It also ate worms, snails, slugs, etc., and has been seen to take small sticklebacks that happened to be in the water. This bird was very cleanly, and washed every morning in a basin of water set apart for the purpose. It was accustomed to be taken upstairs at night and brought down in the morning, and of its own accord went habitually out of the cage into a basket containing moss, where the night was passed, and in the morning likewise left the basket and entered the cage, in which it was carried downstairs.

"When allowed to go about the house, the persons to whom it was attached were sought for and followed everywhere. On becoming unwell, the poor bird took possession of the lap of a member of the family, and looked up to her apparently for relief; though when in health it resisted all attempts at being handled, flying up at the intruder and snapping its mandibles together. Every spring it called with the usual *crake*, beginning very early in the morning; this was usually commenced in March, but on one occasion was uttered as early as the third of February. As was remarked of the bird after this period, 'it would crake quite impudently in the parlor when brought there to be shown off.'

"Moulting took place in the month of August, but no symptoms of uneasiness appeared then or at any particular season. At pairing time this bird was very comical, coming up with its wings spread and neck stretched out after the manner of a turkey-cock, and uttering a peculiar croaking note. It would then make a sort of nest in the cage, croaking all the while, and carry a worm or piece of meat about in its bill. So great a favorite was this Corncrake, that its death was duly chronicled, after having been kept for above six years."

The nest of the Corncrake is placed on the ground, and is made of dried grass arranged in a suitable depression. It generally contains from eight to twelve eggs, of a buffy-white covered with rusty-brown spots. The shell is rather thick, and the size of the egg large in proportion to the dimensions of the bird. The position of the nest and the lateness of the hatching season expose both mother and young to great danger, as the nest is often laid lower and the mother killed by a sweep of the mower's scythe. The parent is very fearless when engaged in incubation; and on one occasion when a female Corncrake had been severely wounded by a scythe and taken into the farm-house for two hours, she returned to her nest in spite of its shelterless condition and her own wounded state, and was rewarded by the successful rearing of the brood.

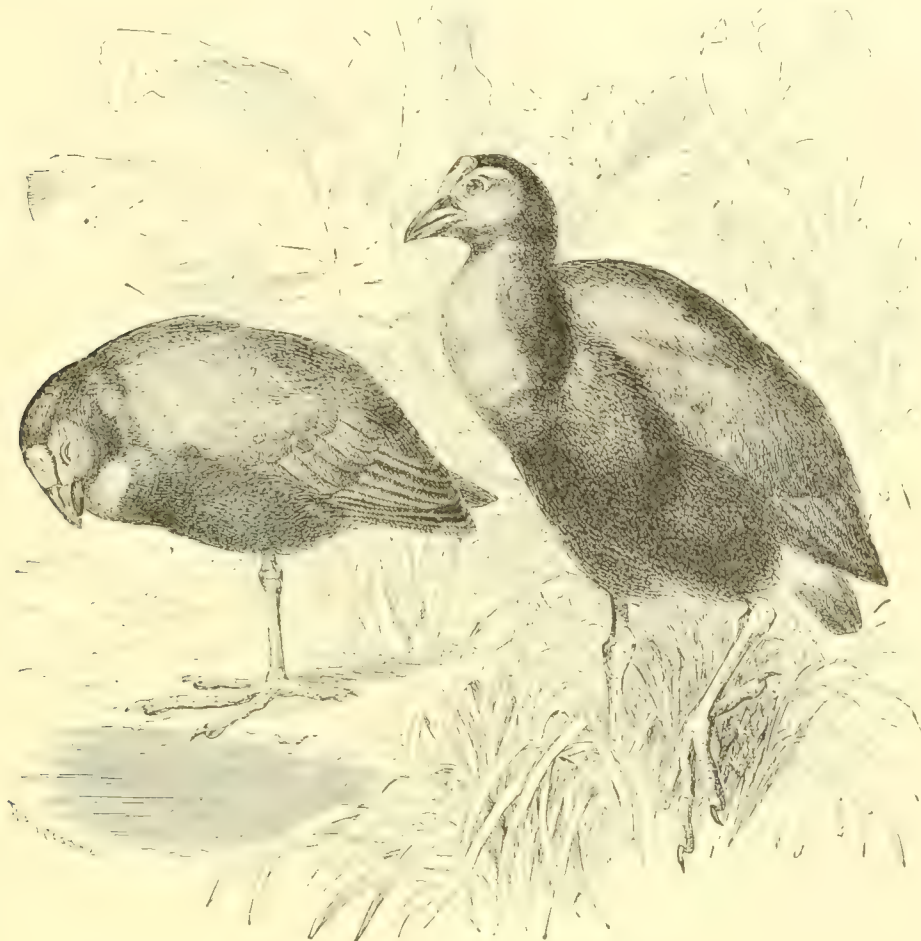
The flesh of the Corncrake is very delicate and well-flavored.

The upper parts of the body are elegantly mottled with dark blackish-brown, ashen and warm chestnut; the first tint occupying the centre of each feather, the second the edges, and the third the tips. The wing-coverts are rusty-red. The throat and abdomen are white, and the breast is greenish-ash, warming into reddish rust striped with white on the sides. In total length the Corncrake is not quite ten inches.

THE HYACINTHINE GALLINULE is a rather curious example of the next sub-family of the Crakes, being remarkable for the large size of its beak and the length of its toes. All the species belonging to the genus *Porphyrio* are fond of the water, although they are oftener seen on land than is the case with the water-hens. They feed upon seeds and other hard

substances, which they crack easily with their powerful bills. Their very long toes enable them to walk upon the floating herbage nearly as well as the Jacanas, and upon land they are very quick of foot. They use their long toes for carrying food to their beak, a habit which has often been observed in the common coot.

The Hyacinthine Gallinule is spread over a large extent of range, being found in many parts of Africa, Asia, and Europe. It is graceful and quick in its movements, but is said to be rather a stupid bird. Perhaps future observers may give a better account of its intellect. The nest of this species is made in the sedgy parts of the morasses which it frequents, and contains a rather small number of nearly white eggs.



HYACINTHINE GALLINULE.—*Porphyrion veterum*.

The color of the Hyacinthine Gallinule is rich blue, taking a dark indigo tone upon the back, and assuming a beautiful turquoise hue upon the head, neck, throat, and breast. The under tail-coverts are white, the bill is light red, and the legs and feet are pinky-red. The length of this bird is about eighteen inches.

OUR most familiar example of the Gallinules is the WATER HEN, sometimes called the MOOR HEN.

This bird may be seen in plenty in every river in Europe, and mostly on every pond or sheet of water where the reedy or rushy banks offer it a refuge. It is a bold bird, though sufficiently wary on occasions: and while it will slip quickly out of sight of a dog or a man with a gun, will swim about with perfect self-possession in a pond by the side of a railway, quite undisturbed by the sound and sight of the rushing train. When startled it flies rapidly across the water with quick beating wings and dangling legs, leaving a long track behind it, which will remain for some little time, like the wake of a ship. As it nears its

reedy refuge, it sinks nearer the surface of the water, so that at the last yard or two of its progress it drives the water before it, and seems equally to run or to fly.

When startled it often dives on the instant, and emerging under floating weeds or rubbish, just pokes its bill above the surface, so that the nostrils are uncovered by the water, and remains submerged until the danger is past, holding itself in the proper position by the grasp of its strong toes upon the weeds. If wounded, it will often escape by diving, so that unless the sportsman kills his birds on the spot he may lose bird after bird unless he has a good dog with him. Sometimes it pretends to be wounded, and drops into the shelter of reeds or bushes in so death-like a manner that the gunner is deluded into the idea that he has killed his bird very neatly, and while he is reloading away goes the Water Hen to some secure retreat.

I once took a snap-shot from a boat at a fine male specimen, in a little pond at the end of an inlet, and to my astonishment, after backing to the mouth of the little stream, saw him swimming and nodding his head as coolly as if nothing had happened. I was going to give him the second barrel, but, being short of ammunition, determined to paddle quietly up the inlet in which the bird was swimming, and to knock it over with an oar. The bird took not the least notice of the boat, so I pushed the blade of the oar under it, lifted it out of the water, and brought it into the boat. On examination I found that it had been struck through the head with a shot; I believe that in such cases the powers of volition are suddenly extinguished, and that the bird continues to act according to the last impression upon the brain. Many birds, as every sportsman knows, will tower when shot, and I have found that in such instances they exhibit a singular tenacity of animal life.

When free from persecution, the Water Hen soon becomes familiar with man, and will mix familiarly with domestic poultry, traversing the garden or farm-yard with easy confidence. It is apt, however, to be rather mischievous, eating fruit and vegetables of various kinds. The Reverend Mr. Atkinson writes: "The Moor Hens having been much encouraged, were very numerous, both about the moat and in two or three flaggy ponds in the adjoining pastures. I have seen as many as fourteen or fifteen at once upon one bed of cabbage plants. They picked the peas, the strawberries, the currants, the gooseberries, all in early stages of their growth, and they stripped the leaves of the newly-planted young cabbages and greens, until nothing was left but ragged fragments of the midrib and stalks."

The nesting of this bird is very peculiar. The Water Hen builds a large edifice of sedges, sticks, and leaves, either on the bank close to the water's edge, upon little reedy islands, or on low banks overhanging the water, and generally very conspicuous. The mother-bird has a habit of scraping leaves and rushes over her eggs when she leaves the nest, not, as some persons fancy, to keep the eggs warm, but to hide them from the prying eyes of crows and magpies, jays, and other egg-devouring birds.

The Moor Hen is by no means niggardly in her labor, but will build one or more extra nests, or rather rafts, for the accommodation of her young brood; and in some cases will, without apparent reason, discard the nest in which the eggs have been hatched, build a new one, and transfer to it her little family. When thoroughly pleased with a locality the Moor Hen evinces a strong attachment to it, and returns to the same spot through several successive seasons.

Should the water rise beyond its ordinary level, this bird is equal to the emergency, and rapidly elevates the nest by adding sticks and inserting them into the fabric. One bird generally remains by the nest and acts as builder, while the other searches for materials and brings them to its mate. Mr. Selby mentions an instance where the bird removed the eggs during the process of elevation, and replaced them after the completion of its labors.

The young are able to swim almost as soon as hatched, and for some time remain close to their parents. I once, to my great regret, shot by mistake several young Moor Hens, still in their first suit of black puffy down, and paddling about among the water lilies and other aquatic herbage where I could not see them. Pike are rather apt to carry off the little creatures by coming quickly under the weeds and jerking them under water before they take the alarm.

The male bird is dark olive-green above; the head, neck, and under parts are blackish-gray. The under tail-coverts and edges of the wings are white. The bill is green towards

the tip and red at the base, the latter hue being brightest at the breeding season. The legs and toes are green, and the naked part of the thigh is red. The female has not so much of the olive as her mate.

THE COMMON COOT, or BALD COOT, as it is sometimes called, is another of the water birds, being seen chiefly in lakes, large ponds, and the quiet banks of wide rivers.

The habits of the Coot much resemble those of the water hen, and it feeds after a similar fashion upon mollusks, insects, and similar creatures, which it finds either in the water or upon land. It is an admirable swimmer, swift and strong, and can grasp the branches firmly when perching, owing to the contraction of the foot, which is furnished with a wide flattened membrane on the edges of each toe, thus presenting a broad surface to the water, and, at the same time, permitting the foot to be used in grasping. The Coot may be seen either swimming or traversing the floating weeds in search of food, or wandering over the fields with quick but rather eccentric gait, pecking here and there at the herbage, and devouring a great quantity of destructive insects, snails, and slugs. When a very severe winter has frozen the ponds and lakes, the Coot will make off to the nearest coast, and along its unlocked shores obtain a living until the warm breezes of spring have loosened the icy body of its more congenial haunts.

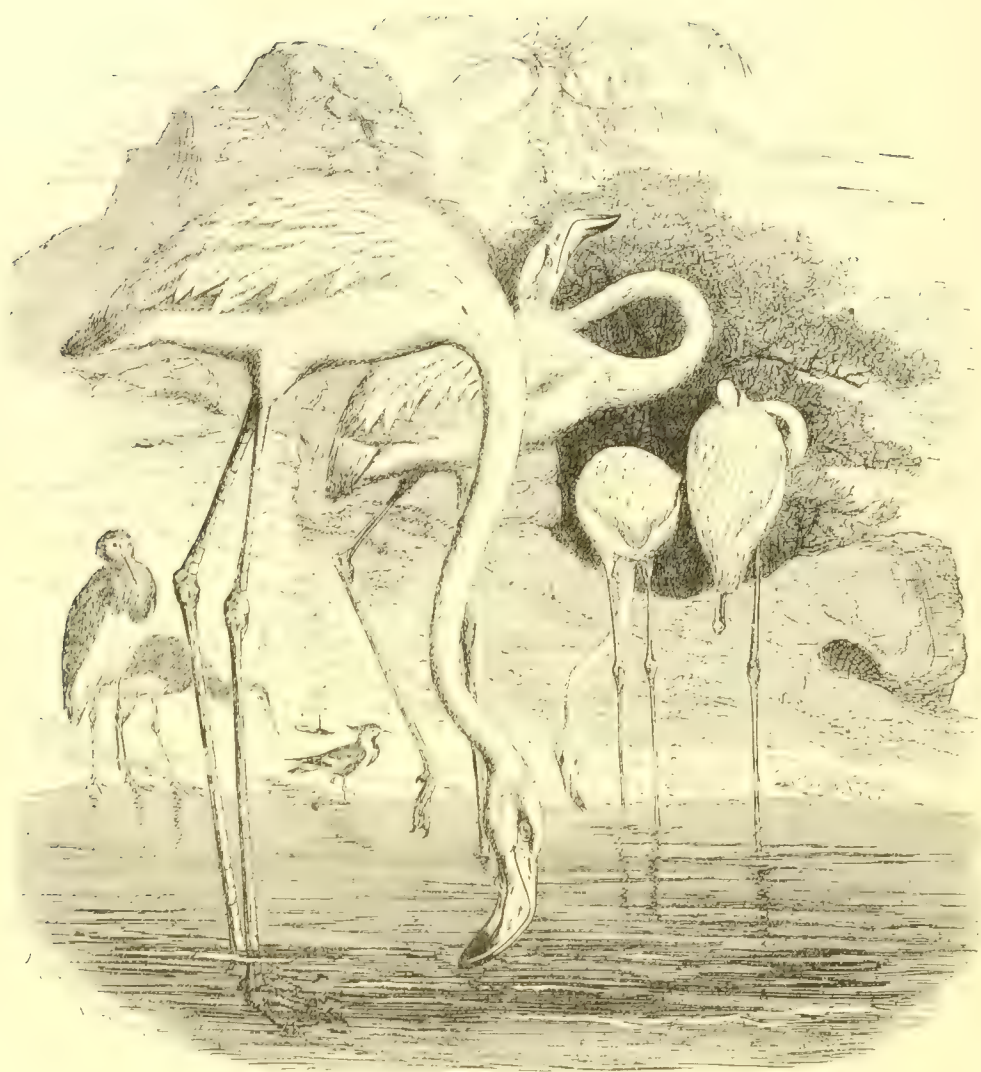
The nest of the Coot is a huge edifice of reeds and rank-water herbage, sometimes placed at the edge of the water, and sometimes on little islands at some distance from shore. I have often been obliged to wade for thirty or forty yards to these nests, which have been founded upon the tops of little hillocks almost covered with water. The whole nest is strongly though rudely made; and if the water should suddenly rise and set the nest floating, the Coot is very little troubled at the change, but sits quietly on her eggs waiting for the nest to be stranded. Several instances are known where the nest and bird have been swept into a rapid current, and carried to a considerable distance. The eggs are generally about eight or ten in number, and their color is olive-white sprinkled profusely with brown. The shell is rather thick in proportion to the size of the egg, so that Coots' eggs can be carried away in a handkerchief without much danger of being broken.

The head and neck of the Coot are grayish-black, the upper parts are deep blue-black, and the under parts are blackish-gray with a tinge of blue. The bill is rather pale orange-red, and the horny plate on the forehead is rosy-red in the breeding season, fading into white at other times of the year, from which circumstance the Coot derives its *sobriquet* of "bald." The legs are yellow-green, the naked part of the thigh orange-red, and the eye bright red. The length of the Coot is about seventeen or eighteen inches.

THE AMERICAN COOT (*Fulica americana*) is more particularly a southern bird. It is quite unique, having lobed feet, like the grebes, yet in other respects resembling the hen, or gallinaceous family. It is yet more singular in being the only species known in America.

THE LIMPKIN (*Aramus Pictus*). This is quite as singular and unique as the preceding, and is probably more unfamiliar than any other known American bird. It stands quite by itself in classification. At first sight it might be taken for a curlew, particularly as its plumage is like the yearlings of that group. The long bill and legs, and long neck quite recall the curlews. It is, however, allied to the rails. The editor of this edition has seen this bird on the Florida Reef, where it is called Water Turkey. It is esteemed as a table delicacy in that region. Though ungainly in aspect and movements, it alights preferably on trees.





FLAMINGO.—*Phoenicopterus roseus*.

ANSERES.

THE GOOSE, SWAN, DUCK, ETC.

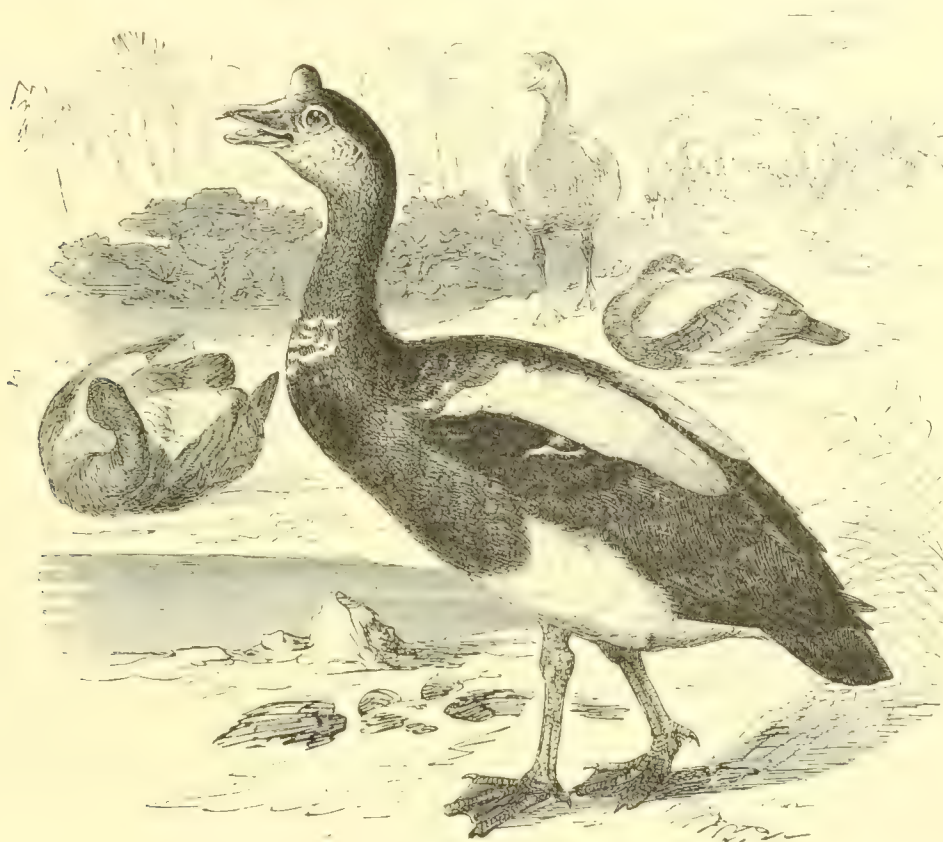


THE well-known FLAMINGO brings us to the large and important order of Anseres, of the goose tribe.

The common Flamingo is plentiful in many parts of the Old World, and may be seen in great numbers on the sea-shore, or the banks of large and pestilential marshes, the evil atmosphere of which has no effect on these birds, though to many animals it is most injurious, and to man a certain death. When feeding the Flamingo bends its neck, and placing the upper mandible of the curiously-bent beak on the ground or under the water, separates the nutritive portions with a kind of spattering sound, like that of a duck when feeding. The tongue of the Flamingo is very thick, and of a soft, oily consistence, covered with curved spines pointing backwards, and not muscular.

A flock of these birds feeding along the sea-shore have a curious appearance, bending their long necks in regular succession as the waves dash upon the shore, and raising them as the ripple passes away along the strand. At each wing is always placed a sentinel bird which makes no attempt to feed, but remains with neck erect and head turning constantly about to detect the least indication of danger. When a flock of Flamingos is passing overhead, they have a wonderfully fine effect, their plumage changing from pure white to flashing rose as they wave their broad wings.

When at rest and lying on the ground, with the legs doubled under the body, the Flamingo is still graceful, bending its neck into snaky coils, and preening every part of its



SPUR-WINGED GOOSE.—*Plectropterus gambensis*.

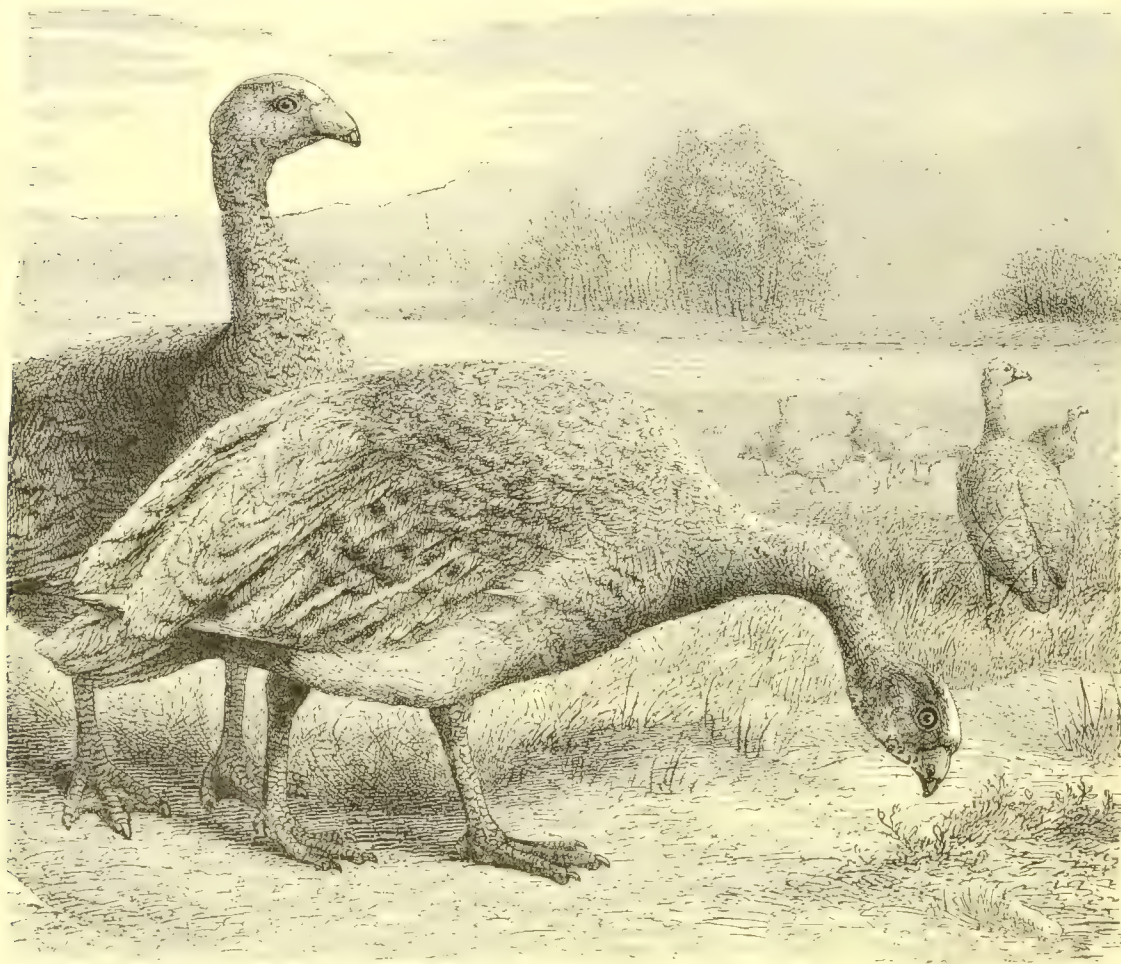
plumage with an ease almost incredible. Its long and apparently clumsy legs are equally under command, for the bird can scratch its cheeks with its toes as easily as a sparrow or a canary.

When flying the Flamingo still associates itself with its comrades, and the flock form themselves into regular shapes, each band evidently acting under the command of a leader. The nest of the Flamingo is rather curious, and consists of mud and earth scraped together so as to form a tall hillock with a cavity at the summit. In this cavity the eggs are laid, and the bird sits easily upon them, its limbs hanging down at each side of the nest like a long-legged man sitting on a milestone. The eggs are white, their number is two or three, and the young birds are all able to run at an early age. Like many other long-legged birds, the Flamingo has a habit of standing on one leg, the other being drawn up and hidden among the plumage.

The curious beak of this bird is orange-yellow at the base and black at the extremity, and the cere is flesh-colored. When in full plumage the color is brilliant scarlet, with the exception of the quill-feathers, which are jetty-black. A full-grown bird will measure from five to six feet in height.

THE AMERICAN FLAMINGO (*Phœnicopterus ruber*). This is one of the most notable and showy birds of the entire list of North American forms, and it is probably rather familiar to most people. It has been said that these birds sit "astraddle" their nests. A late examination of a breeding-place in the West Indies, shows a great number of more or less tall pot-like nests, some of them between three and four feet high, made of mud. The birds sit with legs bent under them as other birds do, the nest being too wide to admit their sitting with their legs hanging down, as it was supposed they did.

The surprising dimensions of this bird are given as follows by Wilson: "The length from the end of the bill to that of the tail, is four feet two inches, but to the end of the claws measures more than six feet. The bill is four inches and a quarter long. In full plumage this bird is almost wholly of a rich scarlet, except the quills, which are black. It does not gain its full plumage before the third year.



CAPE BARRON GOOSE — *Cereopsis nova hollandia*. (See page 593.)

THE curious bird, represented in the engraving on page 591, brings us nearer to the true Geese.

The SPUR-WINGED GOOSE inhabits Gambia and Senegal, and is remarkable for the peculiarity from which it derives its name. The reader will remember that several birds, such as the jacana and the screamers, are armed with horny claws or spurs upon the bend of the wing; and it is rather remarkable that the same formation is found in one genus of the Goose tribe, the wings of the Spur-winged Goose being supplied with two of these appendages. The head, too, is notable for a bold, elevated crest, which starts from the base of the bill, and which during the life of the bird is of a light red color. This protuberance is really part of the skull, and has a very curious aspect when the skeleton is prepared.

The coloring of this species is bold and simple. The general tint of the plumage is deep

black glossed with purple, but the throat, front of the breast, and abdomen are white. In size it rather exceeds the domestic Goose.

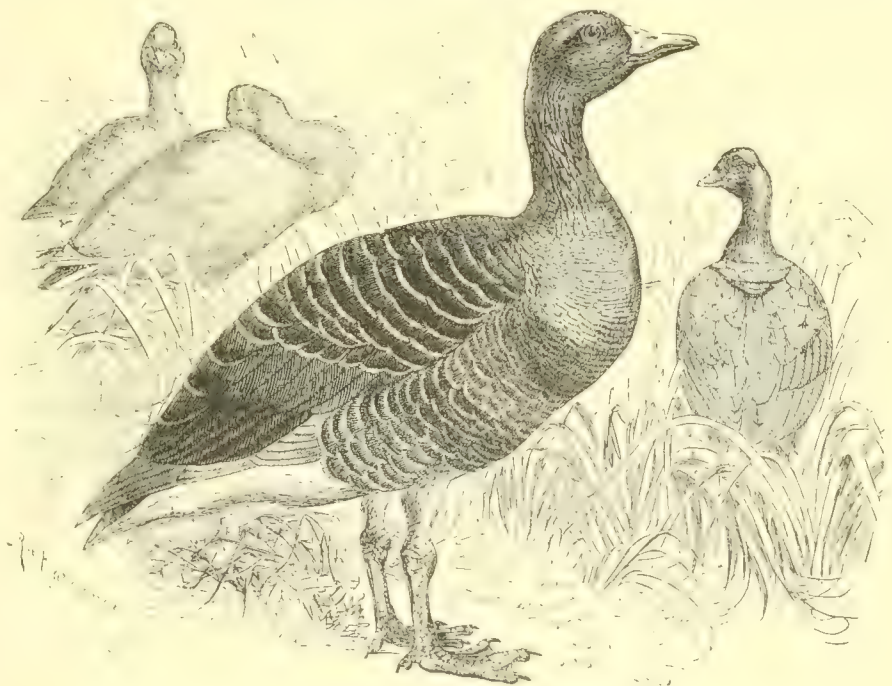
WE now arrive at the true Geese, our first representative being the CAPE BARRON GOOSE, or CEREOPSIS, so called from the cere which covers a large portion of the beak. This fine bird is a native of New Holland, and is found, as its name implies, at Cape Barron Island, in Bass's Straits. It is of large size, fattens easily, its flesh is good, and it breeds without difficulty when in confinement, so that it possesses many of the qualifications for domestication. It has, however, one drawback, for it is very quarrelsome, and its powerful beak and large dimensions make it a dreaded foe in the poultry-yard. It feeds on grass like the common Goose, and requires but little care on the part of the owner, and if it could only be induced to lay aside its quarrelsome habits would be quite an acquisition to our limited list of domestic poultry.

For some time after its first discovery it was so fearless of man that it would suffer itself to be approached and knocked down with sticks, but it has now learned caution through bitter experience, and at the sight of a human being seeks safety in flight. Although one of the true Geese, it cares little for the water, and in this respect, as well as in others, resembles the wading birds. The eggs of the Cereopsis are cream-colored, and the voice of the bird is loud, hoarse, and has a decided trumpet-like tone that can be heard at a considerable distance.

The general color of this bird is brownish-gray, mottled on the back with a lighter hue, and spotted with black on the wing-coverts and scapularies. On the head the gray fades nearly into white. The bill is short, sharp, and hard, and can be used with great force as an offensive weapon. Its color is black, and it is covered with a very large greenish-yellow cere. The legs are pinkish and the eyes bright red.

THE GRAY-LAG GOOSE is found in many parts of the world, and in a wild state makes occasional visits to northern Europe, and it is probable that the Domestic Geese may derive some

of their blood from the other species of the same genus. The white color of the adult Domestic Gander seems to be the result of careful breeding, probably because white feathers sell at a higher price than the dark and gray plumes. In a state of domestication the Goose lives to a great age, and when treated kindly becomes strongly attached to its friends, and assumes quite an eccentric character. Of the breeding and management of the Goose nothing can be said in these pages, the reader



GRAY-LAG GOOSE.—*Anser cinereus*.

being referred to the numerous extant works on domestic poultry. When wild its flavor is not so delicate as after it has been domesticated and properly fed, and when a wild Goose is shot in the northern climates the sportsman always buries it in the earth some hours before

cooking it, a process which removes the rank savor of the flesh. Even the fishy-flavored sea-birds can be rendered eatable by this curious process.

The Gray-Lag Goose may be known from its congeners by the pinky bill, with its white horny nail at the tip of the mandible. The head, nape, and upper part of the back are ashen-brown, and the lower part of the back bluish-gray. The quill-feathers are leaden-gray; the chin, neck, and breast are gray; and the abdomen white. The average length of the adult male is not quite three feet.

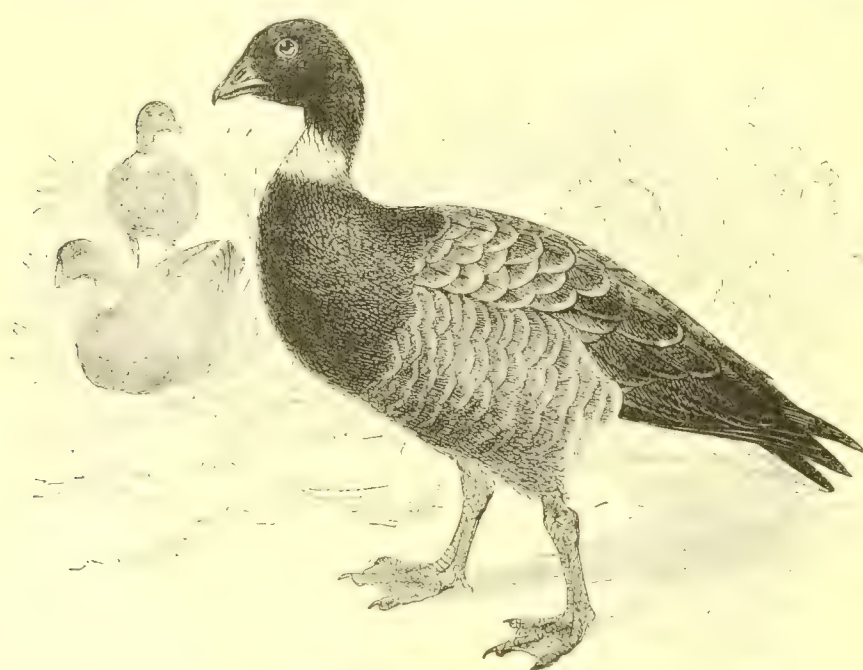
THE BEAN GOOSE has its chief residence in the Arctic circle and high northern latitudes, and coming southward about October.

Mr. Selby mentions that the Bean Goose breeds annually upon several of the Sutherland lakes, and in some places it becomes nearly as tame as the common species, but refuses to associate with them. These birds fly in flocks, varying in form according to their size, a little band always flying in Indian file, while a large flock assumes a V-like form, the sharp angle being always forward. These flocks alight on fields and cultivated grounds, and often commit sad ravages before they again take to wing. On account of this habit the bird is called the Harvest Goose in France.

The beak of this species is rather slender and pointed, and its color is black with an orange centre. The head and upper parts are brownish-gray, the primaries are of a darker hue, both tail-coverts are white, the throat and breast are grayish-white, and the abdomen is pure white. The length of the bird is about thirty-four inches.

THE BERNICLE GOOSE seems to prefer the western to the eastern coasts of Europe.

The name of Bernicle Goose is given to this bird because the olden voyagers thought that it was produced from the common barnacle shell, and this notion had taken so strong a hold of their minds that they published several engravings representing the bird in various stages of its transformation. The positive manner in which they put forth their declaration is very amusing. "What our eyes have seen, and hands have touched," writes Gerard in his "Herbalist," "we shall declare. There is a small island in Lancashire, called the Pile of Foulders, wherein are found the broken pieces of old and bruised ships, some whereof have



BERNICLE GOOSE.—*Bernicla leucopsis*.

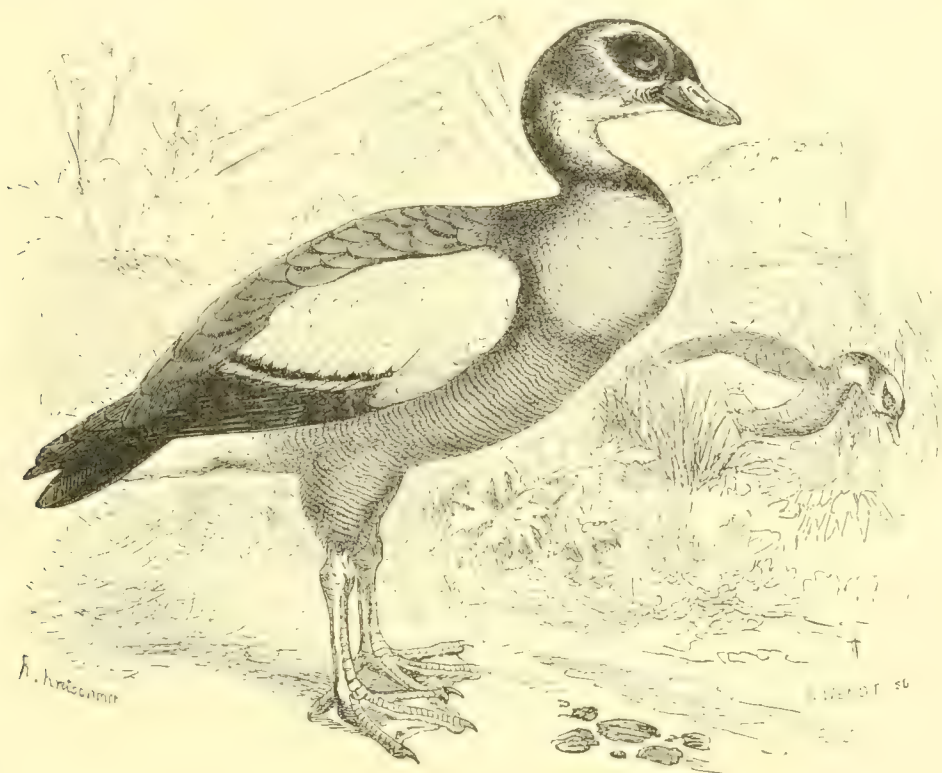
been cast thither by ship-wracke, and also the trunks and bodies with the branches of old and rotten trees, cast up there likewise; wherein is found a certain spume or froth, that in time breedeth into certain shels, in shape like those of the muskle, but sharper pointed and of a whitish color, wherein is contained a thing, in form like a lace of silk finely woven as it were together, of a whitish color; one end whereof is fastened into the inside of the shel, even as the fish of oisters and muskles are; the other end is made fast unto the belly of a rude

masse or lumpe, which in time commeth to the shape and form of a bird; when it is perfectly formed, the shel gapeth open, and the first thing that appeareth is the foresaid lace or string;

next come the legs of the bird hanging out, and as it groweth greater it openeth the shel by degrees, till at length it is all come forth and hangeth only by the bill; in short space after it commeth to full maturitie, and falleth into the sea, where it gathereth feathers, and groweth to a fowle, bigger than a mallard and less than a goose. . . . For the truth hereof, if any doubt, may it please them to repaire unto me, and I shall satisfie them by the testimonie of good witnesses."

The Bernicle Goose generally assembles in large flocks and haunts large salt marshes near the coast, and feeds on grasses and various algæ. It is a very wary bird and not easily approached. The eggs of this species are large and white. The flesh is considered good. The bill of the Bernicle Goose is black, with a reddish streak on each side. The cheeks and throat are white, a black streak runs from the beak to the eye, the upper parts are boldly marked with black and white, and the lower parts are white. It is rather a small bird, the total length barely exceeding two feet.

There are many other species of Geese which visit even the far northern countries of



EGYPTIAN GOOSE.—*Chenalopex aegyptiacus*.

Europe in more or less abundance, among which may be mentioned the EGYPTIAN GOOSE (*Chenalopex aegyptiaca*), the Brent Goose (*Bernicla brenta*), the Red-breasted Goose (*Bernicla ruficollis*), the Canada Goose (*Bernicla canadensis*), the Pink-footed Goose (*Anser brachyrhynchus*), remarkable for its pinky feet and short and narrow beak, the White-fronted Goose (*Anser erythropus*), and the Chinese Goose (*Anser cygnoides*).

THE WHITE-FRONTED GOOSE (*Anser albifrons*, variety *gambeli*), inhabits the North American continent generally, breeding far north; wintering in the United States and Cuba.

During the winter many thousands of this species are seen in California, and also along the whole Pacific coast. They are called Speckled-bellies there, where they are associated usually with the Snow and Hutchen's Goose, having the same general habits. Their flesh is equally good with the other species. According to Richardson, it breeds far to the north, in woody districts beyond the 67th parallel. Dall found it very common on the Yukon River, arriving

there about first of May, and breeding all along the river to the sea. On the Atlantic coast it is rare. Audubon found them arriving just before the Canada Goose in considerable numbers in Kentucky, betaking themselves to the grassy ponds. Of the different species in this country this is the least shy. The flocks seldom reach above thirty to fifty individuals.

The male is twenty-seven and one-quarter inches long; and sixty inches in extent of wing. The sexes are nearly alike in plumage; the female being a little less in size. The bill is conspicuous as carmine red.

The European White-fronted Goose is seen on this side the Atlantic at rare intervals as a straggler.

THE CANADA GOOSE (*Bernicla canadensis*), or common "Wild Goose" of the Eastern States, inhabits the whole of North America, breeding in the United States as well as farther north. It is accidental in Europe. Dr. Hayden states that it breeds on the Yellowstone, and Coues found it breeding in North Carolina. In the former region it was seen breeding in trees.

Dr. Coues says: "This fact of arboreal nidification is probably little known, and might even be doubted by some; but, although I have not myself seen the nests in the trees, I am perfectly satisfied of the reliability of the accounts furnished me by several persons, among whom I need only mention Mr. J. Stevenson, of Dr. Hayden's party. While I was in Montana, I found the circumstance to be a matter of common information among residents, who expressed surprise that it was not generally known. The birds are stated to build in the heavy timber along the large streams, and to transport the young in their bills to the water. This corresponds to the habit in the wood duck, while it is paralleled to the example of the herring gull, which, according to Audubon, has been seen breeding in communities in trees, though ordinarily it breeds on the ground." The Noddy Tern is another example. The editor of this edition has seen considerable numbers of this tern breeding among the low bushes of the islands of Florida Reef.

A variety of this species is called Hutchen's Goose. Dall found it very abundant in Alaska. This variety is peculiar to the Western States and Territories.

Another variety is called the White-cheeked Goose.

THE LARGER WHITE-CHEEKED GOOSE (*Bernicla canadensis occidentalis*.) Most people have heard the *honk honk* of the Wild Geese, and have seen the triangular or V-shaped group as they pass overhead; sometimes in heavy weather being within gunshot of the earth.

The Canada Goose does not, though gregarious, seem to be fond of the company of other species, as is the case with some. During its migrations it is always unaccompanied by any excepting its own kind. Its flight is strong, rapid, and extremely steady. The flock when migrating flies at about a mile in height. A variety of this Goose is now recognized as the White-cheeked Goose.

BLACK BRANT (*Bernicla nigricans*). This bird is common to North America and Europe, but rare on the Pacific coast. This form—the *nigricans*—is rare on the Atlantic side, where the common Brant is more familiar. At Egg Harbor the Brant is expected about the first of October, or a trifle earlier. The first flocks remain but a few days, and then pass on to the south. On recommencing their journey, they collect in one large body, and making an extensive spiral course, some miles in diameter, rise to a great height, and then steer for the sea, over which they uniformly travel, often making wide circuits to avoid passing over a small projecting point of land. Flocks continue to arrive, many remaining until December. The Brant never dives, but feeds at low water on the flats. The voice is harsh and "*honking*." About the fifteenth of May they are seen coming north, but do not stop long, going on to their breeding-places far north. The weight of this bird is about four pounds, and its length two feet; the extent of wing three feet and six inches. The sexes are almost alike in color—indeed, they cannot be distinguished.

With the lovers of water-fowl the Brant is highly esteemed. "May Brant" is a term well appreciated by them.

The Common Brant (*B. brenta*) is regarded as a distinct species.

Animate Creation.

Testimonials to the "Tafeln" of Brehm's Thierleben.

The late CHARLES DARWIN writes:—"The illustrations are the best I ever saw in any work. I find it superfluous to enter here into particulars, as I already, in the 'Descent of Man,' have willingly and openly confessed how much I have profited by Mr. Brehm's book, and how highly I esteem it."

Sir JOHN LUBBOCK, Bart., D.C.L.:—"You have, I think, done good service in publishing them. They are certainly very admirable."

W. B. CARPENTIER, M.D., LL.D., writes:—"I can quite endorse the favorable opinions already given by distinguished zoologists as to the high character of the illustrations generally."

WE have concluded to submit for public patronage a work with the above title, being a series of exquisite Engravings representing the ANIMAL WORLD, executed with great scientific accuracy, and accompanied by full Descriptive Text, written in popular terms, so as to delight and instruct the people. Anyone who has considered the subject must be at a loss to understand why an ILLUSTRATED NATURAL HISTORY, comprehensive and at the same time popular, has not before this been published in this country. Indeed any lover of animals who has visited the great museums and zoological gardens and has had access to books of engravings in the public libraries, could not fail to remark the wealth of material in existence devoted to this subject. Being confirmed in our conviction of the desirability of such a work, we laid under contribution the best existing authorities for the production of most perfect representations of all the more important living creatures, and among the artists whose delineations will delight the reader, we may mention Harrison Weir, Wolf, Coleman, Fr. Specht, and Mutzel. By far the majority of the engravings in these volumes are from drawings made from the *living* animals, many at the Zoological Society's Gardens in London, England.

We purpose that our patrons shall be aided and interested in their study by such an array of pictures as has never before embellished any Natural History. In numerous instances the engraving is printed in oil-colors, and this portion of the illustrations has been taken charge of by Messrs. L. Prang & Co., of Boston, who we believe rank foremost for high artistic results in this department of printing. These Oleographs were copied under the superintendence of Mr. Prang from the renowned "Tafeln" of "Brehm's Thierleben," so that they may be declared perfectly reliable.

We sought competent advice from various sources as to the most suitable text that should accompany this panorama of handsome Engravings. It was found impossible to embody all the present ideas of naturalists in a single work like this on account of the rapid advances and constant changes in their knowledge of, and habits of thought respecting, the Animal World. And it seemed to us correct that the true object of Zoology is not to arrange, to number, and to ticket animals in a formal inventory, but to inquire into their life-nature, and not simply to investigate the lifeless organism.

What do we know of "Man" from the dissecting-room? Is it not Man, the warrior, the statesman, the poet, etc., that we are interested in? With all veneration which attaches itself to those who are the accredited possessors of abstruse learning, their inordinate use of phraseology detracts too much, we fear, from the fascination that the study of the Animal World would otherwise yield, and as we are not content to have our work restricted to a favored few, we thought the task placed in our hands to be to keep the work free from a repellant vocabulary of conventional technicalities. Our endeavor has been to find an author whose work would be noted for its fund of anecdote and vitality rather than for merely anatomical and scientific presentation, and we arrived at the conclusion that we could not do better than avail ourselves of the Rev. J. G. Wood's comprehensive work—a work most popularly approved by speakers of the English language. It would be superfluous to say one word concerning the standard character of his book, from the pages of which old and young at the other side of the Atlantic have obtained so much instruction and rational amusement. Avoiding the lengthened dissertations and minute classifications of specialists, he presents to his readers in popular terms a complete treatise on the Animal Kingdom of all climes and countries. The one objection that could be urged against it was, that animal life in America might be treated more fully and American forms given more consideration. In order to obviate this drawback and to do full justice to the creatures of our own country, we secured the aid of Dr. J. B. HOLDER, of the American Museum of Natural History in New York, an undoubted American authority, who has adapted Wood's work to American wants and given prominence to American forms of Animal life.

The splendid work on Rodentia, by Allen, Coues, and others, will be fully consulted. The valuable work on North American Birds, by Baird, Brewer, and Ridgway, will be the guide in the treatment of birds. The late arrangement of the classification and nomenclature of North American Birds, by Mr. Ridgway, and the Committee on that subject of the Ornithologists' Union, will be utilized in full. The arrangement of Mammals will be after the latest classification by Professor Flower, of the Zoological Society of London. So that this will be the first popular Natural History worthy of the name that has made its appearance here, which gives due and full recognition to the animate world surrounding us.

Terms of Publication.

The extent of the work will be 68 parts of 28 pages, at the price of 25 cents each. The entire publication will contain 31 Oleographs and 68 Full Page Engravings on Wood, besides many hundreds of exquisite Illustrations interspersed through the text. The parts will be issued every two weeks, and are payable only as delivered. No subscriber's name will be received for less than the entire work, and anyone removing, or not regularly supplied, will please address the Publisher by mail. **No order can be cancelled after acceptance.**

N. E.

SELMAR HESS, Publisher, New York.

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Animate Creation

A popular edition
of the

Standard
Natural
History

Our
Living
World



Selmar Hess,
Publisher
New York

THE BERNICLE GOOSE (*Bernicla leucopsis*) is occasionally found on our coast. A specimen in the American Museum of Natural History, in Central Park, described by Mr. Lawrence, came from the North Carolina coast.

THE EMPEROR GOOSE (*Philacte canagica*). This species is a handsome one, and inhabits the northwest coast of North America.

THE BLACK-BELLIED TREE DUCK (*Dendrocygna autumnalis*). This unfamiliar form inhabits Central and South America, and Southwestern United States. It is a slender-bodied bird, and seems to be at home on trees as well as elsewhere.

Another species is Fulvous Tree Duck (*D. fulva*), which inhabits Central and South America, and reaches north as far as Arizona and California.

THE beautiful Swans now come before our notice. There are nine or ten species of these fine birds, which are well represented in Europe.

Our most familiar species is the TAME OR MUTE SWAN, so called from its silent habits. This elegant and graceful bird has long been partially domesticated throughout Europe, and enjoys legal protection to a great extent; heavy penalties being proclaimed against any one who kills a Swan without a legal right. The Swan is presumed to be a royal bird, *i.e.* the property of the Crown, and only to be possessed by a subject under a special grant. To each license thus granted was attached a "swan mark," which was cut on the upper mandible of the birds, in order to show the right of the owner. Swans of a certain age, not marked, become Crown property, except in some instance where a grant conveys the right to seize and keep any adult Swan which has not been marked. The "marks" are of endless variety, partly heraldic, and contrived so as to pain the bird as little as possible. The present royal mark consists of five diamonds, with rounded angles, two cut longitudinally at the base of the beak, and the other three transversely towards the tip. The mark granted to the University of Oxford is a cross with equal arms, each arm being again crossed near its extremity, and that of Cambridge is three buckles, one large in the middle of the beak, with the point towards the head, and the other two smaller at the tip, with their tongues pointing in different directions.

The marking of the Swans is termed Swan-upping, a name which has been corrupted into Swan-hopping, and is conducted with much ceremony. The technical term of the Swan-mark is *cigninota*. Swan-upping, an old custom at European Courts, takes place in the month of August, the first Monday in the month being set aside for the purpose, when the markers of the Crown take count of all Swans in the river, and mark the clear-billed birds which have reached maturity. The fishermen who protect the birds and aid them in nesting are entitled to a fee for each young bird. The general mark is a notch on the one side of the beak.

The food of the Swan consists mostly of vegetable substances, and the bird can be readily fattened on barley, like ordinary poultry. The young birds, called cygnets, ought not to be killed after November, as they then lose their fat, and the flesh becomes dark and tough. Sometimes the Swan will feed upon animal food, and has been seen to catch and swallow small fish, such as bleak and roach. In the spawning season the Swan is a terrible enemy to the fish, haunting all the spawning-grounds, and swallowing the eggs till it can eat no longer. The Swan will find out the spawn as it hangs on the submerged branches, and strip them of their valuable load. They will follow the carp to their breeding-grounds, and swallow their eggs by the quart, and in many cases they have almost entirely destroyed the fish which inhabited the pond or stream in which they live.

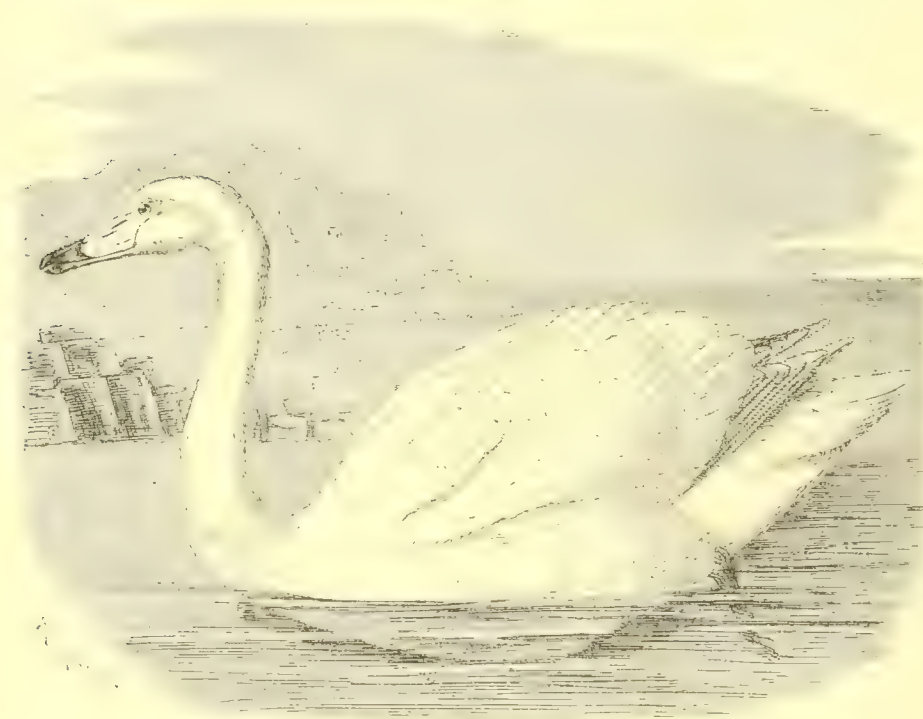
A good idea of the damage done to anglers by the Swan may be formed from a forcible though unrefined description given by one of the piscatorial fraternity: "There never was no manner of doubt about the dreadful mischief the Swans do. They eats up the spawn of every kind of fish till they have filled out their bags, and then on to shore they goes, to sleep off their tuck out, and then at it again." At such times the birds are so greedy after their feast that they can hardly be driven away, and will often show fight rather than leave the spot.

The nest of the Swan is a very large mass of reeds, rushes, and grasses set upon the bank, close to the water, in some sheltered spot. Generally the bird prefers the shore of a little island as a resting-place for its nest. Like other water-birds, the Swan will raise the nest by adding fresh material before the rising of the water near which it is placed. There are generally six or seven eggs; large, and of a dull greenish-white. The young are of a light bluish-gray color, and do not assume the beautiful white plumage until maturity. The mother is very watchful over her nest and young, and in company with her mate assaults any intruder upon the premises. During the first period of their life the young Swans mount on their mother's back, and are thus carried from one place to another. If in the water, the Swan is able to sink herself so low that the young can scramble upon her back out of the water, and if on land she helps them up by means of one leg.

THE HOOPER, ELK SWAN, or WHISTLING SWAN, may at once be distinguished from the preceding species by the shape and color of the beak, which is slender, without the black tubercle, and is black at the tip and yellow at the base, the latter color stretching as far as the eye.

The name of Hooper is given to this bird because its cry resembles the word "hoop" very loudly uttered, and repeated many times successively. The bird arrives in Europe in the winter, mostly in little bands. At the northern islands a few Hoopers remain throughout the

year, and large flocks make their appearance about October, departing for the north in April. On the wing these birds generally fly in the form of a wedge, and cry loudly as they go. The curious sound is produced by means of the formation of the wind-pipe, which is very long, doubled upon itself, and traverses nearly the entire length of the breast-bone, which is hollowed to receive it. The length of wind-pipe depends on sex and age, the adult males exhibiting this



WHISTLING SWAN.—*Cygnus musicus*.

curious structure in the greatest perfection. In the Mute Swan the windpipe is short, and does not enter the breastbone at all.

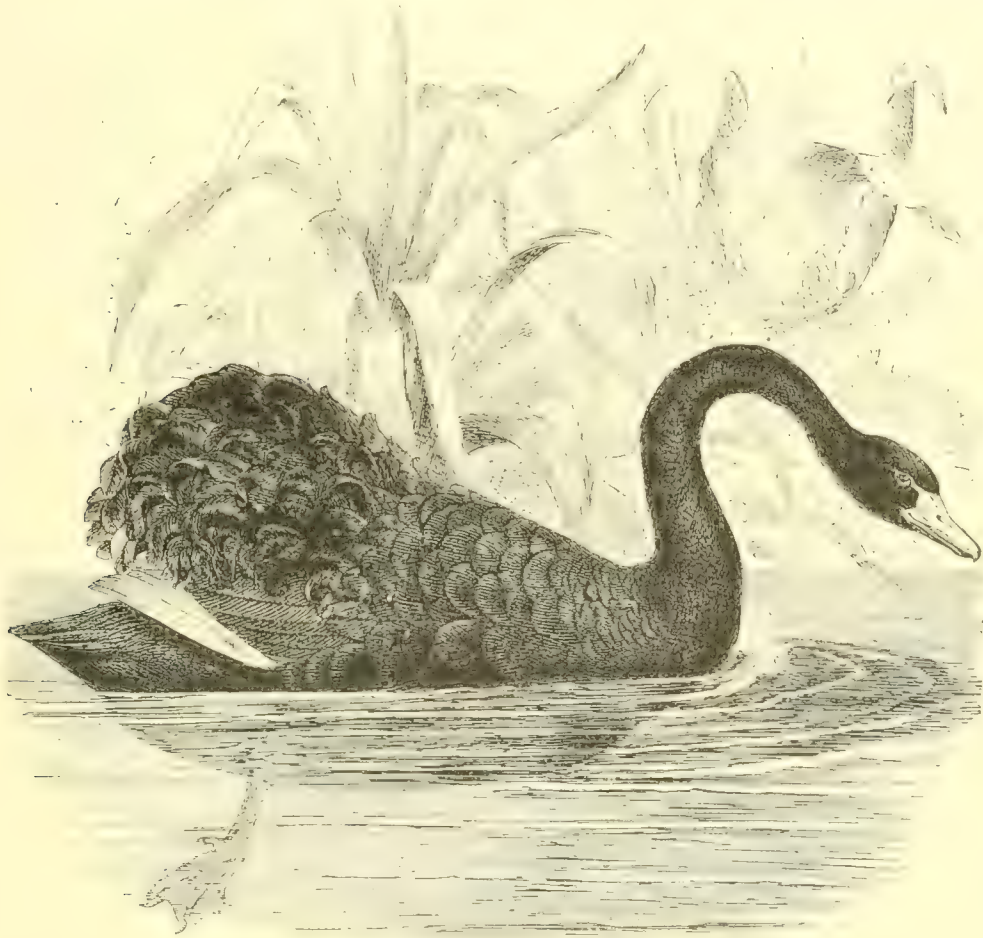
The nest of the Hooper is like that of the Mute Swan, and the eggs are pale brownish-white. The length of the Hooper is about the same as that of the mute species, *i. e.*, five feet.

BEWICK'S SWAN, another European species, resembles the hooper in many respects, but may be distinguished from that bird by its smaller size, the large patch of orange at the base of the beak, and the structure of the windpipe and breastbone, which are found in the same place as those of the hooper, but with considerable modification. This is not nearly so graceful

a bird as either of the preceding species, sitting on the water more like a goose than a Swan, and having been frequently mistaken for the wild goose, especially when on the wing. When flying, they generally go in a line. The length of this bird is only four feet.

ANOTHER species, the POLISH, or IMMUTABLE SWAN, derives its name of immutable from the fact that the young are white like their parents, and do not pass through the gray stage of plumage. It may be readily distinguished by the orange color, which covers almost the whole of the beak, and the shape and position of the nostrils, which are entirely surrounded by the orange hue. There is a slight tubercle at the base of the beak.

HOWEVER emblematical of ornithological fiction a BLACK SWAN might have been in ancient times, it is now almost as familiar to everybody as any of the white species.



BLACK SWAN.- *Cygnus atratus*.

This fine bird comes from Australia, where it was first discovered in 1698. It is a striking and handsome bird, the blood-red bill and the white primaries contrasting beautifully with the deep black of the plumage. It is not so elegant in its movements as the white Swan, and holds its neck stiffly, without the easy serpentine grace to which people are so well accustomed in other Swans. The young are not unlike those of the white Swan, and are covered with a blackish-gray down. Dr. Bennett mentions that in the Australian Museum is preserved a white or albino specimen with pink eyes.

It is a very prolific bird, producing two and sometimes three broods in a season, commencing to breed about October, and ceasing at the middle of January. The nest is like that of the Swan, and the eggs are from five to eight in number, of a pale green, washed with brown. These birds are found in the southern district of Australia and Jamaica, and are

sometimes so abundant that Dr. Bennett recollects "a drove of Black Swans being driven up George Street (Sydney) like a flock of geese."

TRUMPETER SWAN (*Olor buccinator*). This beautiful bird inhabits from the Mississippi River Valley northward, to the Pacific, Hudson's Bay, Canada, and casually on the Atlantic coast. It breeds from Iowa and Dakota northward; in winter, south, to the Gulf. The vocal apparatus is singularly powerful. The same elongation of the windpipe is seen as that in the great whooping crane. Dr. Coues says: "I have observed this Swan on but few occasions, in Dakota only, late in September and during the first half of October, when the birds were migrating southward, with great numbers of Canada and snow geese, and various wild ducks. Before leaving the Columbia River, early in November, the Swans had begun to arrive from the North; and frequently, when at Fort Vancouver, their trumpeting drew our attention to the long, converging lines of these magnificent birds, so large and so snowy-white, as they came from their northern nesting-places, and screaming their delight at the appearance of the broad expanse of water, perhaps their winter home, descended into the Columbia."

Audubon says: "The Trumpeter Swans make their appearance on the lower portions of the waters of the Ohio about the end of October. . . . No sooner did the gloom of night become discernible through the gray twilight, than the loud, sounding notes of hundreds of Trumpeters would burst on the ear; and as I gazed on the ice-bound river, flocks after flocks would be seen coming from afar and in various directions, and alighting about the middle of the stream opposite our encampment. Not a single individual did I ever observe to act as sentinel, and I have since doubted whether their acute sense of hearing is not sufficient to enable them to detect the approach of their enemies. If the morning proved fair, the flocks would rise on their feet, trim their plumage, and, as they started with wings extended, as if racing in rivalry, the pattering of their feet would come on the ear like the sound of great muffled drums, accompanied by the loud and clear sounds of their voices. On running fifty yards or so to windward, they would all be on wing. If the weather proved thick, drizzly, or cold, they would remain on the ice, walking, or standing, or lying.

"To form a perfect conception of the beauty and elegance of these Swans, you must observe them when they are not aware of your proximity, and as they glide over the waters of some secluded inland pond. On such occasions the neck, which at other times is held stiffly upright, moves in graceful curves, now bent forward, now inclined backward over the body. Now, with an extended, scooping movement, the head becomes immersed for a moment, and with a sudden effort a flood of water is thrown over the back and wings, when it is seen rolling off in sparkling globules, like large pearls. The bird then shakes its wings, and glides forward with surprising agility and grace. When swimming unmolested, the Swan shows the body buoyed up, but when apprehensive of danger, it sinks considerably lower.

THE WHISTLING SWAN (*Olor americanus*). Inhabits the continent of North America, breeding only in the far north, wintering in the United States. It seems to be unknown in the Gulf States, but is not uncommon in Chesapeake Bay in November, when many are obtained for the market. The flesh is not much esteemed. The species referred to as Hooper, or Whistling Swan, is distinct from this.

Audubon refers to the account of Dr. Sharpless, who says: "About the first of September, these Swans leave the Polar seas. . . . When making either their semi-annual migrations, or on shorter excursions, an occasional scream issues from the leader, which is almost always replied to from some posterior swan in the line, with an 'all's well' vociferation. When the leader of the party becomes fatigued with his extra duty of cutting the air, he falls in the rear, and his neighbor takes his place. When mounted, as they sometimes are, several thousand feet above the earth, with their diminished and delicate outline hardly perceptible against the clear blue of heaven, this harsh sound, softened and modulated by distance, and issuing from the immense void above, assumes a supernatural character of tone and expression that excites, the first time heard, a singularly peculiar feeling.

"In flying, these birds make a strange appearance; their long necks protrude, and present

at a distance mere lines with black points, and occupy more than one-half their whole length ; their heavy bodies, and triangular wings, seeming but mere appendages to the prolonged body in front."

The Swan, when migrating, with a moderate wind in favor, probably travels at the rate of an hundred miles an hour.

When feeding, and dressing their feathers, Swans make a great outcry, and can be heard several miles. Their notes are extremely varied : some closely resembling a deep bass of a common tin horn, while others run through a variation of the French horn. It is said that these birds require five or six years for maturity. Bewick's Swan is sometimes found in this country.

THE EUROPEAN SWAN (*Olor cygnus*) is also a straggler here.

THE beautiful MANDARIN DUCK is worthy of heading the true Ducks, for a more magnificently clothed bird can hardly be found when the male is in health, and in his full nuptial plumage.

These birds are natives of China, and are held in such esteem that they can hardly be obtained at any price, the natives having a singular dislike to seeing their birds pass into the possession of Europeans. "A gentleman," writes Dr. Bennett, "very recently wrote from Sydney to China, requesting some of these birds to be sent to him. The reply was, that from the present disturbed state of China, it would be easier to send him a pair of mandarins than a pair of Mandarin Ducks." This bird has the power of perching, and it is a curious sight to watch them perched on the branches of trees overhanging the pond in which they live, the male and female being always close together, the one gorgeous in purple, green, white, and chestnut, and the other soberly apparelled in brown and gray.

This handsome plumage of the male is lost during four months of the year, *i. e.*, from May to August, when the bird throws off his fine crest, his wing-fans, all his brilliant colors, and assumes a sober tinted dress resembling that of his mate. The Summer Duck of America (*Aix sponsa*) bears a close resemblance to the Mandarin Duck, both in plumage and manners ; and at certain times of the year is hardly to be distinguished from that bird. The Mandarin Duck has been successfully reared in the Zoological Gardens, some being hatched under the parent bird, and others under a domestic hen, the latter hatching the eggs two days in advance of the former. The eggs are of a creamy-brown color.

The crest of this beautiful Duck is varied green and purple upon the top of the head, the long crest-like feathers being chestnut and green. From the eye to the beak, the color is warm fawn, and a stripe from the eye to the back of the neck is soft cream. The sides of the neck are clothed with long, pointed feathers of bright russet, and the front of the neck and breast are rich, shining purple. The curious wing-fans, that stand erect like the wings of a butterfly, are chestnut, edged with the deepest green, and the shoulders are banded with four stripes, two black and two white. The under surface is white. The female is simply mottled brown, and the young are pretty little birds, covered with downy plumage of a soft brown above, mottled with gray, and creamy-white below.

THE SHIELDRAKES, of which there are two European species, namely, the common Shieldrake (*Tadorna vulpanser*) and the Ruddy Shieldrake (*Casarka rutila*), are handsome birds, and remarkable for the singular construction of the windpipe, which is expanded just at the junction of the two bronchial tubes into two very thin horny globes, one being nearly twice the size of the other. They are sometimes called Burrow Ducks, because they lay their eggs in rabbit-burrows made in sandy soil, and are often discovered by the impression of their feet at the entrance of the holes. The nests are made of grass, lined with down plucked from the breast of the parent, and the eggs are generally from ten to twelve in number.

THE well-known WIDGEON is very plentiful in Europe, arriving about the end of September or the beginning of October, and assembling in large flocks.

These birds, although wary on some occasions, are little afraid of the proximity of man and his habitations, feeding boldly by day, instead of postponing their feeding-time to the night, as is often the case with water-fowl. The length of the Widgeon is about eighteen inches.

WIDGEON, or BALDPATE (*Mareca americana*). This species inhabits the whole of North America, and south as far as Guatemala. It breeds in the United States generally. It is a straggler in Europe. In Dakota and Montana it breeds in abundance. Dall found it nesting along the Yukon, with the Pintail. The length is twenty-one inches. The female is smaller, with duller plumage.

This is one of the finest species. Its plumage, without being extremely showy, is very pleasing. It is common along the more southern portions of our Atlantic coast, being seldom seen north of Long Island. The Widgeon, like some other ducks we have noticed, never dives; it therefore contrives to "hang around" the vicinity of the canvas-back, and when he has brought up a goodly mouthful of the coveted wild celery, the Widgeon snatches a portion away, thus, unwittingly, perhaps, contributing to its own improvement as an edible-bird. The "celery" being regarded as a cause of the prized flavor of the canvas-back, the Widgeon's flesh, possibly, becomes somewhat improved by this diet. In New Orleans it is called "Zuizin." In the Eastern and Western States it is Baldpate. Their flight is rapid, well-sustained, and accompanied by the whistling sound of the wings. They move in flocks of moderate size, and with little regularity as to their ranks. When first startled, they fly directly up to a considerable height, and in a hurried and irregular manner. They walk prettily and with ease.

The ENGLISH WIDGEON (*M. penelope*) is occasionally found on the coast. An excellent figure is here given.

THE PINTAIL DUCK (*Querquedula acuta*), so called on account of its long and sharply-pointed tail, is a winter visitor of moderate climates, arriving in October and departing in the spring. The male is a very handsome bird, its head and neck being rich dark brown, its back beautifully pencilled with black on a gray ground, and the throat, breast, and abdomen snowy-white, and a line of the same hue running up the sides of the neck as far as the head. The length of a male bird is about twenty-six inches; the female is shorter, because her tail-feathers are not so well developed.

This species is native both to North America and Europe, breeding in high latitudes, and migrating south to Panama and Cuba. "The Pintail is a 'river duck,'" says Dr. Coues, "being far more abundant on the pools and streams of the interior than along either coast. It is one of the earliest arrivals in the United States, passing our northern boundary early in September, with the Teal, and becoming generally distributed during the following month. It is one of the most elegant and graceful of our ducks, either on the land or on the water, walking or swimming with the long, pointed tail elevated, and the thin, sinuous neck swaying in all directions. It is shy and vigilant, but owing to its habit of clustering close in groups about the margin of pools, where the reeds or brush-wood favor approach, it is sometimes slaughtered in numbers with ease.

"Few ducks exceed the Pintail in extent and regularity of migration. In the spring it withdraws altogether from most parts of the United States to high latitudes to breed, and in winter pushes its migrations to Panama." Mr. Dall says it is extremely common in the Yukon district and on the marshes near the sea-coast. Hybrids of this species, with the Mallard, are quite common, and have, it is said, proved fertile.

Audubon says few birds exhibit more graceful motions than the Pintail on the water. Its delicately slender neck, the beautiful form of its body, and its pointed tail, which it always carries highly raised, distinguish it from other species. It is found in company with widgeons, teal, and mallard, usually on ponds. In the Middle States the Pintails are highly prized for the table.



SELMAR HESS, PUBLISHER, N. Y.

MALLARD DUCK.

THE common MALLARD, or WILD DUCK, now comes before our notice.

This is by no means one of the least handsome of its tribe, the rich glossy green of the head and neck, the snowy-white collar, and the velvet black of the odd little curly feathers of the tail, giving it a bold and striking appearance, which, but for its familiarity, would receive greater admiration than it at present obtains. It is the stock from which descended our well-known domestic Duck, to which we are so much indebted for its flesh and its eggs.

THE MALLARD (*Anas boschas*). This familiar bird is nearly cosmopolitan, and nearly everywhere domesticated. It is wild through the whole of North America, breeding sparingly throughout the United States, as well as farther north. It is very rare in New England. In the Missouri region it is very abundant. During the fall migration, Mallards are very conspicuous among other birds. The female is distinguished by being smaller than the male, and in having the several ornamental portions less brilliant. In North Carolina this species is abundant, and in the habit of visiting the rice fields to feed.

BLACK MALLARD (*Anas obscura*). This is known along the coast as Black Duck, and elsewhere as Dusky, from its uniformly darker plumage. It is the most numerous and most common of its tribe, on our coast. It is only partially migratory. Many remain during the summer and breed in sequestered places in marshes, or on the sea-island beaches. Vast numbers, however, migrate northward on the approach of spring. Like the Mallard, it rarely dives for food, feeding on the flats, but it swims and flies with great velocity. This Duck is two feet in length, and three feet two inches in extent of wing. There is little difference between the sexes; the male is rather larger, and the plumage somewhat brighter.

A species, called FLORIDA DUSKY DUCK, is found in the Gulf States.

THE pretty little TEAL is the smallest and one of the most valuable of the European Ducks, its flesh being peculiarly delicate and its numbers plentiful.

It arrives on the northern shores about September, coming over in large flocks, and remains there until the commencement of its breeding season. Some few birds, however, remain in northern countries throughout the year. Like other Ducks, it is found on lakes, ponds, and in marshy places, choosing the last-mentioned localities for its home. The nest of the Teal is made of a large heap of leaves, grasses, and sedges, lined with down and feathers. The number of eggs is about eight or ten, and their color is buffy-white. The Teal is caught in decoys together with the mallard and other Ducks.

BLUE-WINGED TEAL (*Querquedula discors*). This beautiful little Duck inhabits North America, chiefly east of the Rocky Mountains, and the Pacific coast in Alaska; and in the West Indies, Mexico, and Central and South America to Equador. It is a straggler in Europe. In the Missouri region it is abundant during the migrations, and probably breeds there. It is the first of its tribe that returns to us in the autumn from its breeding-places in the north. In September it is abundant along the shores of Delaware, where it sits on the mud-flats, in numbers so great, that the gunners often kill many at a shot. It flies rapidly, and when it alights, drops down suddenly like the snipe or woodcock. Its flesh is esteemed highly, being greatly improved after feeding some time among the reeds, when it becomes very fat. It measures fourteen inches in length, and twenty-two in extent of wing.

CINNAMON TEAL (*Querquedula cyanoptera*). This Teal inhabits South America, and in North America from the Rocky Mountains to the Pacific, northward to the Columbia River. It is also found in Louisiana. It is called Red-breasted Teal in some quarters, and differs little from the other species in habits.

THE GREEN-WINGED TEAL (*Nettion carolinensis*) inhabits the whole of North America, Mexico and Cuba, and breeds from the northern border of the United States northward. It appears in the Missouri region, in August, in vast numbers, covering the pools and water-courses.

THE EUROPEAN TEAL (*N. cracca*) is an occasional straggler in America. It is very abundant in the season in the rice plantations of the South. Its length is fifteen inches, and extent of wings twenty-four inches.

THE WOOD DUCK (*Aix sponsa*) is, perhaps, the most beautiful bird in North America. It inhabits all of the northern continent, especially the United States, breeding in all parts; wintering in the South. Audubon says of it:—

“The Wood Duck, or Summer Duck, as it is called in some quarters, breeds in the Middle States in April, in Massachusetts a month later, and in Nova Scotia not much before June. It appears to prefer for breeding the hollow of a tree. I have frequently been surprised to see it go in and out of a hole, when their bodies while on the wing seem to be more than twice as large as the aperture where it had deposited its eggs. Once only I found a nest,



WOOD DUCK.—*Aix sponsa*.

in the fissure of a rock. On coming to a nest with eggs when the bird was absent in search of food, I have always found the eggs covered over with feathers and down, although quite out of sight, in the depth of a woodpecker's or squirrel's hole. On the contrary, when the nest was placed on a broken branch of a tree, it could easily be observed from the ground, on account of the feathers and sticks and withered grass about it. If the nest is placed immediately over the water, the young, the moment they are hatched, scramble to the mouth of the hole, launch into the air, with their little wings and feet spread out, and drop into their favorite element; but whenever their birth-place is some distance from it the mother carries them to it, one by one, in her bill. On several occasions I observed, however, when the hole was thirty, forty or more yards from a bayou or other piece of water, the mother suffered the young to drop on the grasses and dried leaves beneath the tree, and afterwards led them directly to the nearest edge of the next pool. At this early age the young answer to the parent's call with a mellow *pee, pee, pee-e*, often and rapidly repeated. The call of the mother at such times is low, soft, and prolonged.”

The Wood Duck rarely visits the sea-shore, its favorite haunts being the solitary deep and muddy creeks and ponds of the interior. Wilson saw a nest in Tuckahoe, New Jersey, which was in a tree within twenty yards of a dwelling. The female was observed to carry down thirteen young in less than ten minutes, one by one. She took them in her bill by the back of the neck or the wing, and landed them safely at the foot of the tree, when she led them to the water.

The Summer Duck never flies in flocks of more than three or four individuals together, and most commonly in pairs or singly. It is often bred in confinement, and proves quite tame, and a most desirable pet, as its beauty is superb. Its length is nineteen inches, and extent of wing twenty-eight inches. The female is handsome, but wants the richer pencilling on the wings.

THE SCAUP DUCK (*Fulix marilla*) inhabits the whole of North America, Europe, and Asia. It is called Greater Scaup as distinguished from the Little Scaup or Lesser Black-head, Blue-bill, Broad-bill, and Shuffler. The term Blue-bill is, says Wilson, the more familiar name in the Middle States. It is often abundant on the Delaware, where small snails are found growing in quantities. It is not, on this account, esteemed for its flesh. Its length is about nineteen inches, and extent of wing twenty-nine.

THE LESSER SCAUP (*Fulix affinis*), or LITTLE BLACK-HEAD, is closely allied to the preceding, but is considerably smaller. It is known to gunners as the "Creek Broad-bill," from its habit of frequenting small streams. It is a very abundant species. Its range is about the same as that of the preceding. "Authors," says Dr. Coues, "are very much at variance about the relationship of these two species, and the question is not yet satisfactorily settled, though at present they are regarded as two species."

THE RING-BILLED BLACK-HEAD (*Fulix collaris*) inhabits the whole of North America, breeding far north, wintering in the United States and beyond. It reaches south to Guatemala, Cuba, and Jamaica, and is accidental in Europe. It is called by our gunners "Bastard Broad-bill." It resembles the two preceding species. It is not abundant on the sea-coast. A few are observed on Long Island and New Jersey shores every spring and autumn. On the streams of the interior it is quite common during winter. In the Middle States it is known as the Tufted Duck, under which name Wilson describes it.

THE curious SHOVELLER DUCK (*Spatula clypeata*) may be at once known by the form of the beak, which is much widened on each side near the tip, and bears some resemblance to the beak of the Spoonbill.

The head and upper part of the neck of the adult male are rich green, and the lower part of the neck white, this tint extending to the scapularies, and some of the tertials. The back is brown, the tip of the wing, the lesser wing-coverts, and part of the tertials are pale blue, the primaries being blackish-brown. The upper tail-coverts and tail are black, and the breast and abdomen are chestnut-brown. The female is brown of various tones above, and pale brown below. The total length of the bird is about twenty inches.

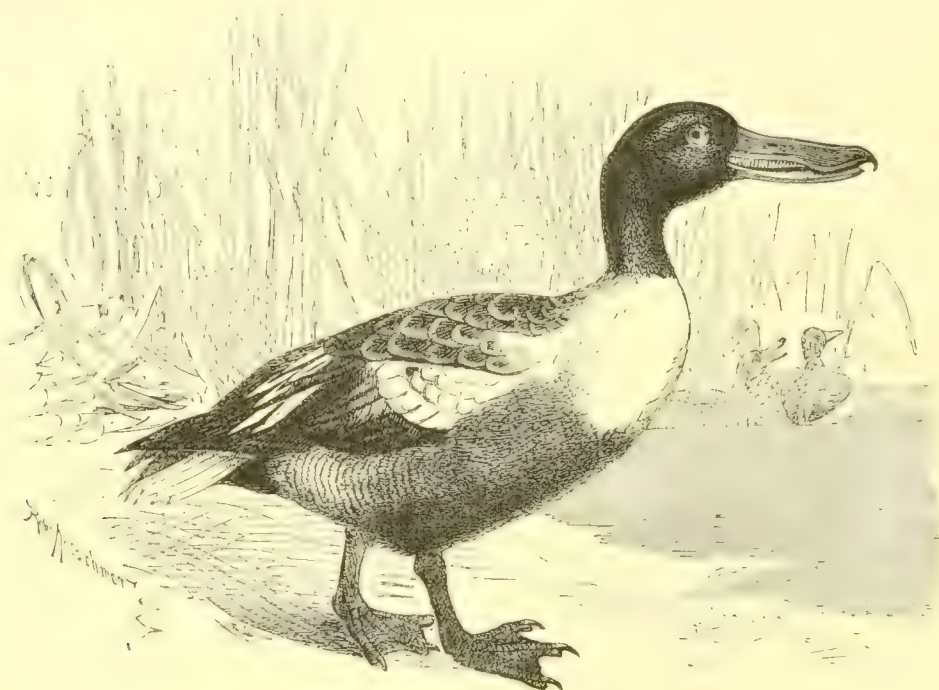
The Shoveller, also called Spoon-bill Duck, inhabits North America, Europe, Asia, and Australia. It breeds from Texas to Alaska. In South America it is replaced by a nearly allied species. This Duck is abundant in all parts of the western country of the United States.

Few Ducks are more elegantly marked than this. The bill is large, and rather curiously formed. Though it occasionally visits the sea-coast, it prefers the inland lakes and streams, where it feeds on the worms and small creatures that inhabit the muddy shores. The great, spoon-shaped bill has a set of teeth like strainers on its edges, whereby the soft animal matter is retained and the water is strained through.

The Creoles of Louisiana call this bird "Micoine,"—the meaning being obscure.

THE GADWALL (*Chaulelasmus streperus*) inhabits North America generally, Europe, Asia, Africa, and is generally distributed in the United States. Few birds are so cosmopolitan in

habitat. It breeds in various parts of the United States, and does not appear to go to the extreme north, as most species do. The female is two inches shorter than her mate, and about four inches less in extent of wing. It is one of the most active of its tribe, flying swiftly, and diving with great power. At Egg Harbor it is seen in small numbers, where it is called Welsh Drake, or German Duck. Audubon met with it all along the shore, from Eastport to Texas. It is, however, more abundant in the interior, and particularly on the tributaries of the great rivers. The Gadwall is not especially familiar, but is widely distributed. The Creoles of Louisiana call it *violon*, on account of the whistling sound produced by the wings. It generally accompanies the widgeon and red-head. It assembles in small flocks, and feeds on small fish, insects, and aquatic weeds. The Gadwall is esteemed as nearly or quite equal to the red-head as food. Unlike some others, it walks with ease on land, often making incursions land-

SHOVELLER DUCK.—*Spatula clypeata*.

ward, where it finds succulent grasses and weeds to feed on. Like the mallard, it often alights in grain-fields and picks up the fallen grain. The male is twenty-one and three-quarter inches long, and thirty-five inches in extent of wing; the female, nineteen and a quarter inches long, and thirty-one inches in extent of wing.

WE now arrive at another sub-family of Ducks, termed Fuliginæ.

The POCHARD DUN-BIRD, or RED-HEADED POKER, is one of the winter visitors of northern European countries, appearing, as is usual with such birds, in October, and departing in the spring. It is a wary and timid bird, and being an excellent diver, is often able to escape from the decoys by submerging itself at the first alarm, and making its way under water to the mouth of the tunnel. It is, however, possessed of little presence of mind, and, according to Montagu, can be taken plentifully by a very rude kind of process.

THE AMERICAN RED-HEAD (*Aethya americana*), called also the American Pochard, inhabits the whole of North America, particularly the eastern portion. It is a common associate of the canvas-back, and much resembles it; indeed, the likeness is so close, it is no doubt sold very often for the latter bird. It is nearly or quite equal as an edible. It is twenty inches in length, and two feet six in extent of wings. The Red-head is more often seen in the Southern States than the canvas-back, though both are recorded as wintering far south. The

editor of this edition shot one at Fort Jefferson, Tortugas ; being the only example seen there during several years' residence.

THE CANVAS-BACK (*Aethya vallisneria*) inhabits the whole of North America. Breeds from the Northern States, northward, and winters from the Middle States, southward, to Guatemala. This greatly and justly esteemed edible Duck is found on the Chesapeake Bay about the middle of October. It frequents in great numbers all the principal streams in the Middle States, and winters there, feeding on the delicate water-plant called wild celery (*vallisneria*), which is said to give the flesh its delicate flavor. On the Potomac River it is called White-backs.

So valuable are Canvas-backs, the sportsmen contrive various ways to procure them. A favorite one is to "toll" them towards shore, near where the gunner is hidden behind an ambush. A dog is taught to swim leisurely on the waters where the birds are abundant. The latter are so shy, it is impossible to get within gunshot while exposed to their view. The Ducks are curious about any movements the dog makes, and gradually swim near the masked battery, when more or less birds are secured before they are aware of the stratagem. During the day they are dispersed about ; but towards evening they collect in large flocks and go into the creeks, where they ride as at anchor, with their heads under their wings, asleep, there being always sentinels awake, ready to raise an alarm on the least appearance of danger. Even when feeding and diving in small parties, some are always left to guard the flock.

During the severest winters, the Canvas-backs suffer considerably from their favorite feeding-places being frozen up. They fly up and down stream in great numbers, crowding around the holes in the ice, or where the more open bay affords diving-places. Audubon regards the range of the Canvas-back as from the mouths of the Mississippi River to the Hudson River. It breeds in all parts of the fur countries. Dr. Sharpless says : "The Chesapeake Bay has, with its tributary streams, been long known as the greatest resort for water fowl in the United States. This has depended on the profusion of their favorite food, which is accessible on the immense flats or shoals that are found near the mouth of the Susquehanna River, and on the shores of the bay and connecting streams, as far south as York and the James Rivers. Though great numbers yet resort there, not more than one half are noticed in late years. Nearly a dozen other species of Ducks accompany them in these waters. The most singular fact of the bursting of the bodies of the Canvas-back is often noticed ; the abundance of food prompting them to feed until they are enormously fat.

Audubon says : "To a stranger visiting these waters, the innumerable Ducks feeding in beds of thousands, or filling the air with their careering, with the great numbers of the beautiful white swans resting near the shore, like banks of driven snow, might induce him to suppose the facilities for their destruction were equal to their profusion, and that with so large an object in view a sportsman could scarcely miss his aim. But the great thickness of their covering, the velocity of their flight, the rapidity and duration of their diving, offer obstacles of great moment."

Audubon describes at more detail the singular habits of this Duck, which render it easily "fooled," and therefore more readily captured by the sportsman. "Most persons on these waters have a race of small white or liver-colored dogs, which they familiarly call 'toler' breed, but which appear to be the ordinary poodle. These are extremely playful, and are taught to run up and down the shore, in sight of the Ducks, either by the motion of the hand or by throwing chips from side to side. They soon become perfectly acquainted with their business, and as they discover the Ducks approaching them, make their jumps less high, till they almost crawl on the ground, to prevent the birds discovering what the object may be. This disposition to examine rarities has been taken advantage of by using red or black handkerchiefs by day, and a white one by night, by 'tolling,' or even by gently plashing the water on the shore. The nearest Ducks soon take notice, at the strange appearance, raise their heads, gaze intently for a few minutes, and then push for the shore, followed by the rest. On many occasions, I have seen thousands swimming in a solid mass direct to the object ; and by removing the dog farther in the grass, they have been brought within fifteen feet of the bank."

When near enough, and when turning, so that their sides are exposed, the gunners often kill great numbers before the mass of them have retreated.

The sexes of this bird are quite varied, and the female is a trifle the smallest.

THE GOLDEN-EYE (*Clangula glaucium americana*), called also Whistle-wing, and Garrot, is found throughout all North America, Cuba, and Europe. The vigorous whistling of its wings readily distinguishes it. It swims and dives well, and is said to build nests in trees; though, like the more maritime Ducks, it does not walk easily on land. The sexes are different in plumage. In size, the female is lesser; the entire length of the male is nineteen inches, that of the female seventeen.

The Golden-eye is especially abundant in South Carolina during the winter, where it resorts to the rice plantations. It also frequents the water-courses of Florida at the same season. It is shy and wary, preferring open bodies of water, as the wider open streams—the Ohio, and other great rivers. Audubon says, the whistling of the wings may be heard nearly a half a mile distant. He found a nest of this species in an old tree, and removed several eggs. Authors testify to this species inhabiting the fur countries, the Rocky Mountains, and along the northwest coast. The flesh is too fishy to be eatable.

Few species of native Ducks are equal to this in a certain beauty. The buffle head of the male, with its rich, greenish-black plumage, and the golden irides, render the bird strikingly beautiful.

The female is much plainer in plumage, and a trifle smaller. It has the same general coloration, but duller, and lacks the white cheek-spot. Great differences are seen among the species of Ducks as relate to the coloration of the sexes. In some there is a uniform plain, mottled plumage in the female, while the male is totally different, with rich, special coloration. In others, as in the present case, the coloration in the female is not far removed from that of the male; in fact, being much like that of the young of the first year.

The Golden-eye is not numerous on the coast, but is more common in the interior, on the large streams. Its flesh, as an edible, must depend greatly on the feeding, for some authors claim it is as good as the scaup Duck. In the fall, after feeding on “small stuff,” it is fat, and quite desirable.

BARROW'S GOLDEN-EYE (*Clangula islandica*) inhabits North America, south, as far as New York and Utah; in Europe, occasionally. It probably breeds in the Rocky Mountains. Audubon took this species for the summer-plumaged Golden-eye, and other authors have doubted its validity as a species. There is now no doubt of its being distinct from the American Golden-eye.

The present species is called in the West, Rocky Mountain Garrot. It is a thoroughly northern bird, reaching south no farther than New York, and in the interior as far as Utah. Specimens have been taken in Massachusetts.

THE BUTTER-BALL (*Clangula albeola*) is like a miniature golden-eye, though the plumage differs in color. It inhabits North America, Cuba, and Mexico, and is accidental in Europe. It nests in Northern Dakota, and elsewhere in the United States. It is known as Spirit Duck in the Middle States, and Buffle-head, where, in the secluded creeks, it is abundant in the season, the autumn and winter. It is also called Butter Box, Marionette, Dipper, and Die Dipper. The flesh is not esteemed as a table delicacy. It is one of the smallest of Ducks, being only fourteen and a half inches in length, and twenty-three in extent of wing; the female is a little less. About the same degree of difference is noticed between the sexes as in the golden-eye, the female having the general coloration, but some degrees less brilliant, and the white cheek-spots much less in size.

This Duck is an excellent diver, its extreme celerity suggesting the title, Spirit Duck. It flies, also, with extraordinary velocity. The note is a short *quack*.

THE HARLEQUIN DUCK (*Histrionicus minutus*) is now a rare bird in this country. In some parts of New England it is called Lord, or the pair, Lord and Lady, probably from the

extraordinary beauty and elegant bearing of the species. Its range is throughout North America generally, chiefly northerly and coastwise. It reaches on the Atlantic coast in winter as far as the Middle States, and on the Western as far as California. It breeds on the Rocky Mountains. It is more of a maritime species than otherwise.

At Hudson's Bay it is called Painted Duck, and after the term Harlequin this is a most expressive name. Harlequin, however, it is, essentially, for its markings suggest it to all, we should presume. It is difficult to say which is the more beautiful, this or the wood Duck. Perhaps the term beautiful will apply appropriately to the latter, while handsome or extremely singular will naturally apply to the Harlequin Duck. It has, under the names of Lord and Lady, been rarely seen off the New England coast, a few being taken every winter. It is now much less common, and is thought to be quite near extinction. It is small, though larger than the butter-ball. Its length is seventeen inches, and extent of wing twenty-eight inches. The female is a little less, and is very nearly like the male, the head and neck being almost identical in coloration. It bred in Audubon's time, at Grand Manan, in Nova Scotia, and Labrador.

THE OLD SQUAW (*Harelda glacialis*). This bird inhabits the northern hemisphere generally. It is chiefly maritime, though it resorts to the Great Lakes. The term Long-tailed Duck is given it in some quarters, on account of the very exceptional ornament for a Duck, the long central tail-feathers. It is also called South-Southerly, and Old Wife. We have seen this Duck in large flocks, riding the sea just off the shores of Lynn and Nahant, in Massachusetts, where they spent the colder season. They were always near enough to hear their Old Wife cackling, and proved always a cheerful accompaniment to the rolling winter seas that beat upon the old, maritime town of Lynn. Other species were occasionally noticed, as the velvet Duck and scoter, but the Old Wives were the regular occupants of the bay. Its flesh is not desirable as an edible. Audubon says: "The range of this noisy, lively, and beautiful Duck extends along our coast to Texas, and is also found at the mouth of the Columbia River, but is never found on any fresh water courses. They are what our gunners call sea-ducks. Although, like all sea-ducks, the Old Wife swims deeply, it moves with a grace and celerity which, if not superior to any of its tribe, are at least equal." Like others of its tribe, it likes to swim against the wind or tide, as it is then easy for it to rise on wing. It breeds from Labrador, northwards to the Arctic regions. The female has no long tail-feathers, nor the white wing-feathers, and is quite plain in color. The male's summer plumage is like that of winter in form, but in color the whole upper parts are reddish-brown, the head being capped with black, and broad, white cheek-spots encircle the eyes. The breast and under parts are alike in both seasons.

The length of the male is twenty-two inches, that of the female about the same; extent of wing is thirty inches. It is thought to be the swiftest of its tribe, and is certainly the most difficult bird to approach and shoot. While sitting on the water it is rarely shot, as it dives at the flash of a gun.

LABRADOR DUCK (*Camptolæmus labradorius*), or Pied Duck, so called in some quarters. This bird is now practically extinct. None have been found during the last fifteen years, at least.

Wilson spoke of it as "rather a rare Duck on our coasts, and it is never met with on our fresh-water lakes and rivers." It is called by some Sand-shoal Duck. On Long Island it is known as Skunk Duck, on account of its pied markings. Its flesh is dry and fishy. Wilson says: "It is only seen here during winter, when a few are observed in our market. Of their particular manners, place, or mode of breeding, nothing more is known." It seems, then, that the bird has for a long time been scarce, though my friend, Mr. Lawrence, the eminent ornithologist of New York, tells me he has frequently seen them in the markets of the city. This was twenty years since.

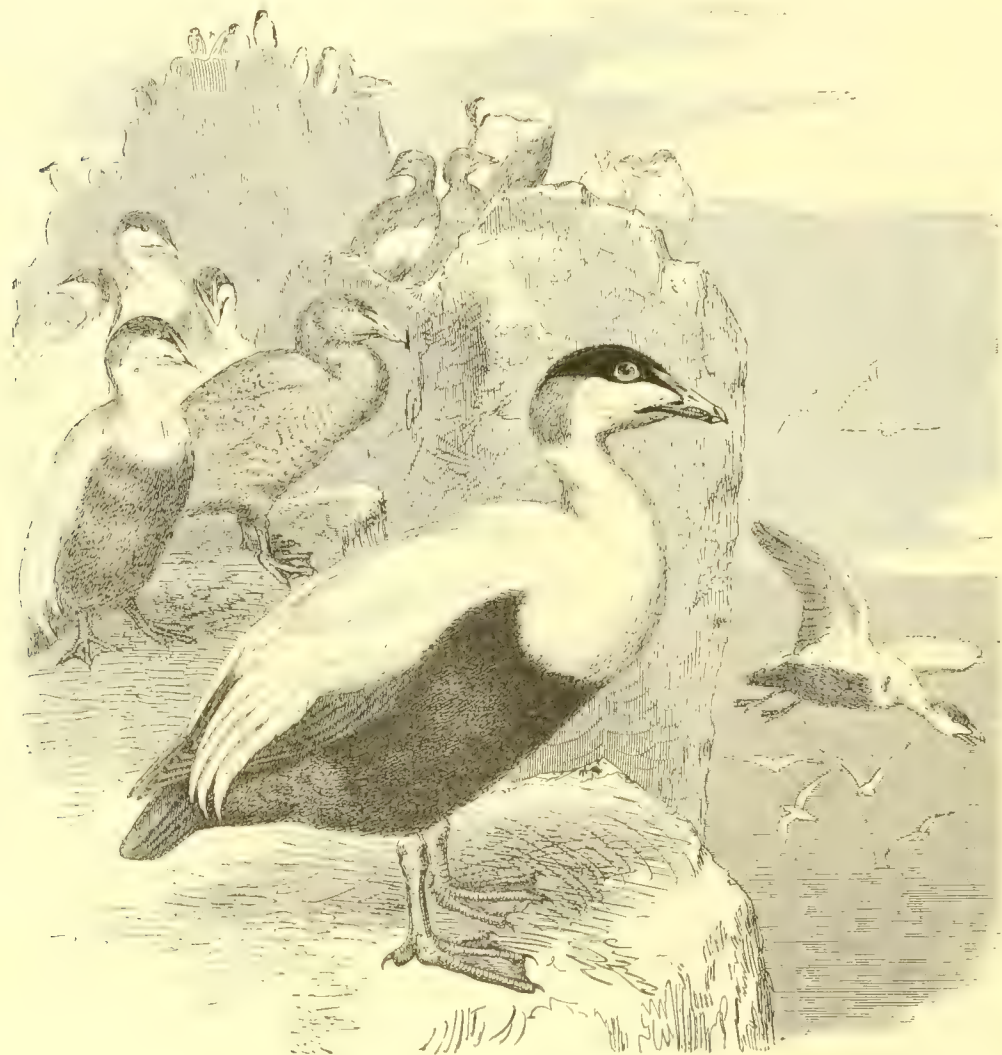
Four fine examples of this bird, two males in full plumage, a young male, and a female, are in the Museum of Natural History, Central Park, New York. They are now regarded as valuable as the great auk.

STELLER'S DUCK (*Polysticta stelleri*) is a very rare bird at present, and is, seemingly, gradually coming to the same fate as the preceding species. It is a striking bird in its markings, nearly as much so as the harlequin. It inhabits the Arctic and high northern coasts of both hemispheres.

Audubon describes this as Western Duck, and says: "This beautiful Duck, which was discovered by Steller, on the northwestern coast of America, has never been known to inhabit our Atlantic shores. So very rare, indeed, is it, that all my exertions to get a specimen have failed."

As it is found in England occasionally, Audubon made his figure from a specimen in the Norwich, England, Museum.

It is a small Duck, being only sixteen inches in length.



EIDER DUCK.—*Somateria mollissima*.

THE EIDER DUCK is only a winter visitant to the more northern portions of Europe.

This bird is widely celebrated on account of the exquisitely soft and bright down which the parent plucks from its breast and lays over the eggs during the process of incubation. Taking these nests is with some a regular business, not devoid of risks on account of the precipitous localities in which the Eider Duck often breeds.

THE COMMON EIDER (*Somateria mollissima*) inhabits both hemispheres. With us its breeding-range reaches south from the Arctics to Maine, where it is called Squam Duck.

Wilson says: "The quantity of down found in one nest more than filled the crown of a hat, yet weighed no more than three-quarters of an ounce; and it is asserted that two pounds of

this down may be crowded into a ball no larger than one's fist, yet is afterwards so dilatable as to fill a quilt of five feet square. This Duck reaches the farthest limits of the north yet known." The most southern limit is said to have been the rocks about Portland harbor, Maine.

The Eider is a large bird for a Duck, being stouter than some geese. Its length is two feet three inches, and extent of wings three feet. Its weight is from six to seven pounds. Its flesh is not esteemed, as it is always fishy in flavor.

As late as 1877 two Eiders were shot in Long Island Sound.

In Wilson's time the Eiders bred from Boston to Bay of Fundy. "In the latter part of the fall of 1833 they were seen in considerable numbers in Boston Bay."—AUDUBON. The latter author vouches for the fact that the young Eiders are sometimes taken by the bill of the old one and transported to the sea, some little distance from the nest.

THE KING EIDER (*Somateria spectabilis*) inhabits the northern portions of America and Europe, chiefly coastwise. It reaches New Jersey southward, and in the interior to Lake Erie. Its high and richly orange-colored upper bill gives this bird a strong, distinctive mark. The female is plain entirely, like the female of the preceding, but smaller. About the first of this century this bird was abundant in Massachusetts Bay, and bred along the New England coast. The King Duck, as this is called, is regarded as equally valuable for its down. Geraud, in his "Birds of Long Island," states that the young of this bird, during winter, are occasionally seen at Egg Harbor, as well as on the shores of Long Island, and that an adult male was shot in Long Island Sound in 1839.

This rare bird is about the size of the common Eider, and is notable for its black and white body, and the light-red beak and legs.

PACIFIC EIDER (*Somateria v. nigra*) is much like the latter, but has the V-shaped mark in black under the chin.

SPECTACLED EIDER (*Lampronetta fischeri*). This is known only on the northwest coast. It has a broad, white space around the eye, resembling in texture cut velvet; this is surrounded by a ring of black, which aids in giving an aspect of being spectacled. This is a very interesting species, and quite rare.

AMERICAN SCOTER (*Edemia americana*), or VELVET DUCK. It inhabits both the Atlantic and Pacific coasts, and the great inland waters. It is a very beautiful bird; is jet-black in plumage, velvety in appearance, and has a rich orange patch on the upper mandible of the bill. The female is quite plain brown. In Audubon's day they were extremely abundant about Boston, New York, and on the Jersey coast—less so southward.

THE AMERICAN VELVET SCOTER (*Melanetta velvetina*) inhabits Europe and America. It is mostly maritime, but visits the great lakes. This beautiful duck appears on the Chesapeake with other species, and in considerable numbers in Audubon's day. We have seen a few during the winter months on the coast around Massachusetts Bay, but it is now quite rare. It is of a jet velvety black, with a large patch of white on its secondary feathers, and a patch of white around the eyes. The bill has an orange and a lemon-colored portion. The female is marked somewhat similarly, but in umber instead of black.

This bird is called by the sportsmen of New England, White-winged Whistler, or White-winged Coot. Its flesh is not esteemed, being like that of many other maritime birds, fishy and coarse. Geraud says it is "extremely abundant on the Long Island Sound during the winter, arriving about the first of October." Ridgway, in the "Smithsonian Catalogue," mentions two species—the present, and *M. fusca*.

THE SURF DUCK (*Pelionetta perspicillata*). This is also called Coot. It inhabits North America coastwise, and Jamaica. A variety is seen in California. Its plumage is black and

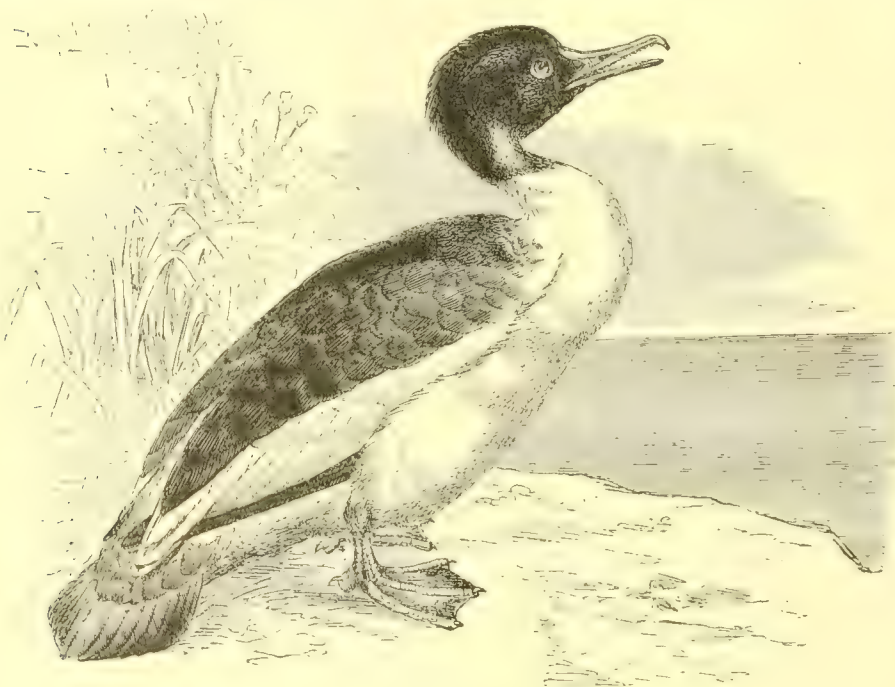
velvety, like the other "Coots," but it has no white, excepting a square patch on the nape, and on the crown. The bill is beautifully variegated with vermilion, orange shading to lemon, and a delicate blue with a spot of black in its midst. Fresh specimens of these birds, as well as the Scoters, are delightful objects. The female is a uniform plain umber-brown; bill the same. Sexes are about alike in size. It is a common winter resident in the Middle States, arriving late in September. A few are said to remain all summer around Falkner's Island, Connecticut coast.

RUDDY DUCK (*Grismatura rubida*). It inhabits North America at large, southward to Guatemala, where it breeds. It also inhabits Cuba in the season. In the Missouri region it occurs during the migrating season, and breeds in the same limits. During Audubon's day this Duck was abundant on the New England coast, and as far south as Florida. It accompanies several other birds in its migrations. It is a small bird, measuring fourteen and three-quarter inches in length. The female is about the same in size, and is very plain in color, differing greatly in this respect from the male. Giraud says it is rare in the vicinity of Long Island, though in Massachusetts Bay and Chesapeake Bay it is common, where it is called Salt-water Teal.

A Duck, named **BLACK-MASKED DUCK** (*Nomonyx dominicus*), is enumerated as a North American species by Ridgway.

THE RACEHORSE, or STEAMER DUCK (*Micropterus brachypterus*), is a very remarkable species, having very short wings, so that it cannot fly, and legs so formed that it scuds over and drives through the water with amazing speed. While passing over the surface it sends the water flying behind it like a paddle-steamer, and has thereby earned its name. It is a

very large species, forty inches in length, and its color is leaden-gray above, and white below. It is found in the Falkland Islands and Patagonia.



GOOSANDER.—*Mergus merganser*.

WANT of space compels us to omit the SCOTER DUCKS (*Oidemia*), and to pass at once to the next sub-family, represented by two species.

The GOOSANDER is one of the winter visitors of the north, making its appearance about November, and departing

in March. Some few birds, however, remain throughout the year. It is generally to be found on the northern coasts, where it may be observed diving after fish with great address, and bringing them to the surface in its long, slender, deeply-notched beak, which is so plentifully provided with so-called teeth, that the bird in some places goes by the name of Jacksaw.

THE pretty little SMEW is another of the winter visitors of the temperate climates of Europe, and is a very common bird, being found not only upon the sea-shore, but frequenting inland lakes and ponds.

It is rather a shy bird, and not very easily approached, especially as it is a swift and active diver, vanishing below the surface at the least alarm, and emerging at some distance. It flies well, but, like most diving birds, walks badly. The food of the Smew consists of fish, small crustaceans, mollusks, and insects, which it obtains under the surface as easily as above it. The eggs of this species are warm buff in color, and they are generally eight or ten in number.

THE AMERICAN SHELDRAKE (*Mergus merganser americanus*) inhabits North America and Europe and Asia. It is called Goosander. Audubon says: "This species may be said to be a constant resident with us, as many individuals breed in the interior of the States of New York, Connecticut, Massachusetts, and Maine." Like the Grebes, it has the power to sink backwards, and it dives expertly, remaining at times several minutes immersed. It swims so deeply when alarmed, and dives so quickly at the flash of the gun, it is extremely difficult to shoot it on the water. It breeds from Massachusetts northward, and along the Great Lakes. The female is smaller than her mate. The male is twenty-seven inches in length. This bird is common in Long Island Sound, and some winter there.

RED-BREASTED SHELDRAKE (*Mergus serrator*), also called Fishing Duck. It inhabits the northern hemisphere. It is called by our northern gunners Pied Sheldrake. It is not so common as the preceding. In the Long Island Sound it is common—wintering there. Audubon says it is by choice mostly dependent on fresh water for its sustenance, but when winters are severe, it is obliged to resort to the open bays and river mouths. It breeds in many of the Middle and Eastern States.

THE HOODED SHELDRAKE (*Lophodytes cucullatus*) inhabits the whole of North America, and Europe. In the Missouri region, says Dr. Coues, this is the more common of the three mergansers—*M. serrator* being the rarest. It breeds in Dakota, and in the Upper Missouri River. It is called in New England Water Pheasant and Hairy Head, according to Giraud. It is more abundant in South Carolina, and common on the Ohio and Missouri rivers. It is a winter resident in Long Island Sound. It is much smaller than the preceding species, being only eighteen inches in length, and two feet in extent of wings.

WE now come to the family of Colymbidæ, or Divers.

The GREAT NORTHERN DIVER is common on northern coasts of Europe, where it may be seen pursuing its arrowy course through and over the water, occasionally dashing through the air on strong pinions, but very seldom taking to the shore, where it is quite at a disadvantage.

Perhaps there is no bird which excels the Northern Diver in its subaqueous powers, although the penguins and cormorants are equally notable in that respect. Its broad webbed feet are set so very far back that the bird cannot walk properly, but tumbles and scrambles along much after the fashion of a seal, pushing itself with its feet, and scraping its breast on the ground.

THE LOON (*Colymbus torquatus*) is a well-known bird, yet it is not often seen. It is large and striking in appearance, and the plumage in the male is very beautiful. The Great Northern Diver is another quite common name for it. It measures nearly three feet in length, with an extent of wings of four feet. A variety called *Adamsi* is known, distinguished by its bill being yellowish-white.

THE BLACK-THROATED DIVER (*C. arcticus*) is a fine species, but considerably less in size than the preceding. It is notable for the bold alternate bars of black and white which decorate the back and tertials. A variety called *Pacificus* is like it, but is somewhat less in size. It is abundant on the Pacific coast. The Red-throated is distributed over the whole of the northern parts of both continents. A large chestnut-red patch on the throat distinguishes it, as well as its smaller size.

THE sub-family of the Grebes is represented in Europe by several well-known species. All these birds may be readily distinguished by the peculiar form of the foot, in which each toe is furnished with a flattened web, the whole foot looking something like a horse-chestnut leaf with three lobes.

THE GREAT CRESTED GREBE is the largest of these birds, and is found throughout the year in several parts of Europe, preferring the lakes and the fenny districts. Like the divers, the Grebes are very bad walkers, but wonderfully active in the water, and tolerably good flyers.



GREAT CRESTED GREBE.—*Podiceps cristatus*.

THE EARED GREBE is the rarest of the European species, and derives its name from a tuft of rich golden feathers which arise behind the eye of the adult bird.

THE EARED GREBE (*Dytes nigricollis californicus*) is found on the Pacific coast. Another called Western Grebe, one of the largest, is also confined to the Pacific coast. Its length is about thirty inches, and extent of wing thirty-four inches. The Crested Grebe is common throughout North America. Its length is about thirty-four inches. The Red-necked is one of the handsomest of the tribe; its beautiful muffed head, and rich umber coloring, render it very striking. Clarke's Grebe is much like the Western in size and coloration. The Horned, St. Domingo, and Thick-billed Grebes are well-known American species. The latter are much smaller than the others, varying from nine to fourteen inches in length.

ANOTHER very fine European species is the SCLAVONIA, or HORNED GREBE (*Podiceps cornutus*), remarkable for its splendid ruff of dark brown feathers. This bird has been seen to carry its young upon its back, and to dive with them when alarmed.

THE well-known DABCHICK, or LITTLE GREBE, is the smallest and commonest of the European species, being found in most rivers, lakes, or large ponds, where the weeds and rushes afford it a concealment, and a foundation for its nest.

AMONG the several representatives of the sub-family of the Alcinae, or Auks, the GREAT AUK is the rarest.



GREAT AUK.—*Plautus impennis*.

This bird, formerly to be found in several parts of Northern Europe, and in Labrador, has not been observed for many years, and is thought to be as completely extinct as the Dodo. Almost the last living specimens known were seen in the Orkneys, and were quite familiar to the inhabitants under the name of the King and Queen of the Auks. So agile is (or was) this bird in the water, that Mr. Bullock chased the male for several hours without being able to get within gunshot, although he was in a boat manned by six rowers. After his departure the bird was shot. The female had been killed just before his arrival.

The egg of this bird is laid close to the water's edge, and is a very large one, marked after a rather curious fashion.

The upper surface of this bird is black, except a patch of pure white round and in front of the eye, and the ends of the secondaries, which are white. The whole of the under surface is white, and in winter the chin and throat are also white. The young are mottled with black and white.

No living specimens have been obtained during the last forty years. In 1869 the last sale of one, stuffed, was made in London, when one was purchased for the American Museum of Natural History by Robert L. Stuart. The price paid was \$625. The length of the Great Auk is about three feet. Its wings are only four inches long. It inhabited the highest latitudes, and but few years since was abundant in the Arctic regions. The shell-heaps along the coast as far south as Massachusetts contain numerous examples of the bones of this bird. Nuttall, in 1834, records that this bird was then breeding in numbers in Iceland and Greenland. A competent cause for their early extinction is seen in the fact that they lay but one egg in a season, a circumstance that seems most remarkable. It is supposed that the last of these birds seen alive were off the Funks, on the shores of Newfoundland, in 1844. In 1870 a specimen was found dead in Labrador; though in poor condition, it was sold for \$200. There are five specimens known to our American collections.

ANOTHER species of the same genus, the RAZOR-BILL (*Alca torda*), is tolerably common in the Arctic seas, and is occasionally found in Northern Europe. The eggs of this species are singularly variable. Mr. Champley informs me that he possesses five hundred distinct specimens.

This is one of the prettiest species; its bill is very peculiar, but is handsomely colored. It is abundant along the rocky shores of the Atlantic.

THE SEA DOVE (*Alle nigricans*). This little bird is very familiar to those who live near the sea-shore of the Eastern States. It is a northern bird, but during the heavy storms of winter it is sometimes blown ashore, and is then picked up with ease, as it is quite exhausted. Its length is but eight inches.

THE LEAST AUK (*Cicéronia pusilla*) is yet smaller than the Sea Dove, measuring less than seven inches in length. It is exclusively a North Pacific bird. Cassin's Auk is another of the Northwestern species—a little larger. The Parrot Auk, Crested Auk, Whiskered Auk are also native to the northwest coast of America. They are all quite small. The Least Auk changes its plumage so considerably in point of color, that two species have been created out of the summer and winter plumage. The pretty, richly-colored projections on the upper mandibles are shed in winter, and renewed on the coming of the breeding-season.

THE odd little PUFFIN is remarkable for the singular shape, enormous size, and light colors of its beak, which really looks as if it had been originally made for some much larger bird. Owing to the dimensions of the beak it is often called the SEA PARROT, or the COULTERNER.

The Puffin can fly rapidly and walk tolerably, but it dives and swims supremely well, chasing fish in the water, and often bringing out a whole row of sprats at a time, ranged along the side of its bill, all the heads being within the mouth and all the tails dangling outside. It breeds upon the rocks and in the rabbit-warrens near the sea, finding the ready-made burrows of the rabbit very convenient for the reception of its eggs, and fighting with the owner for possession of the burrow. Where rabbits do not exist, the Puffin digs its own burrow, and works hard at its labor. The egg is generally placed several feet within the holes, and the parents defend it vigorously. Even the raven makes little of an attack, for the Puffin gripes his foe as he best can, and tries to tumble into the sea, where the raven is soon drowned, and the little champion returns home in triumph. The egg is white, but soon becomes stained by the earth. The food of this bird consists of fish, crustaceans, and insects.

The top of the head, the back, and a ring round the neck are black, and the cheeks and under surfaces are white. The beak is curiously striped with orange upon bluish-gray, and the legs and toes are orange. The length of this bird is about one foot.

THE COMMON PUFFIN (*Fratericula arctica*) is a singular looking bird, its bill being very thin and compressed, while it is very deep. It is abundant along the north Atlantic coast. A variety *glacialis* is larger. The Horn Puffin, Tufted, and Horn-billed Puffin are confined to the Pacific coast.

THE Penguins form a very remarkable sub-family, all its members having their wings modified into paddles, useless for flight, but capable of being employed as fore-legs in terres-



KING PENGUIN.—*Aptenodytes pennantii*. (See page 620).

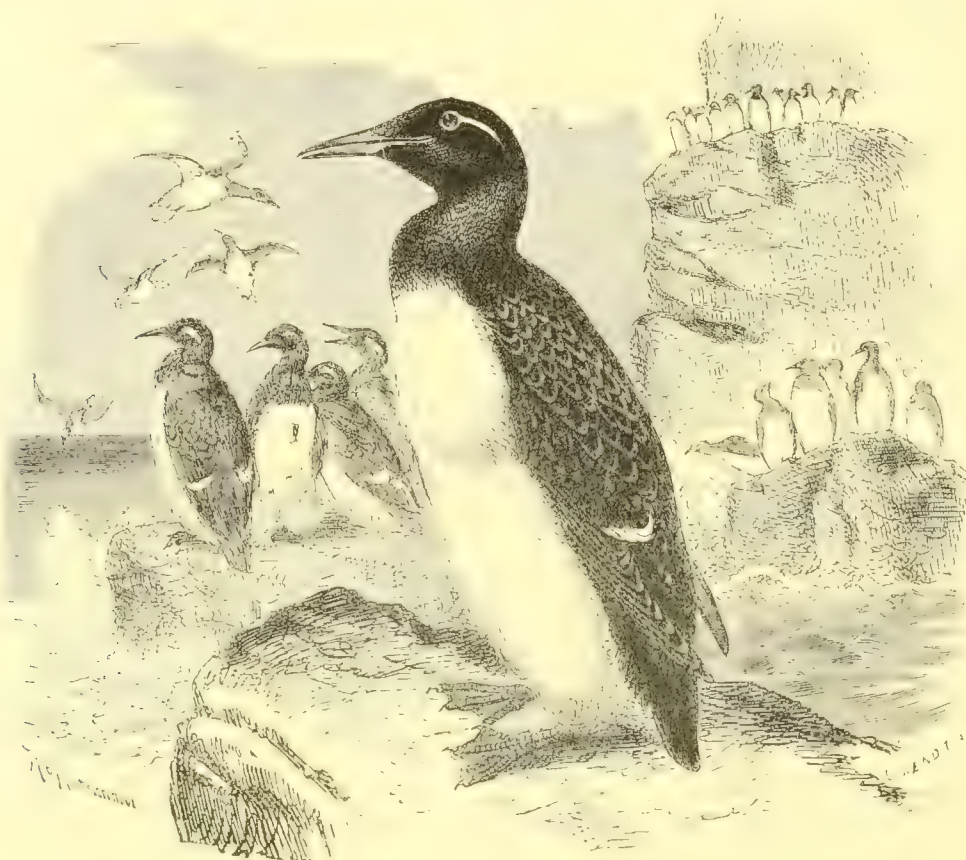
trial progression when the bird is in a hurry, and probably as oars or paddles in the water. There are many species of Penguins, but as they are very similar in general habits, we must be content with a single example.

The KING PENGUIN is a native of high southern latitudes, and is very plentiful in the spots

which it frequents. It swims and dives wonderfully well, and feeds largely on cuttle-fish. Dr. Bennett has given an admirable description of this bird and its habits, as it appeared on Macquarrie's Island, in the South Pacific Ocean.

THE common GUILLEMOT is an example of the next sub-family.

This bird is found plentifully on our coasts throughout the year, and may be seen swimming and diving with a skill little inferior to that of the divers. It can, however, use its legs and wings tolerably well, and is said to convey its young from the rocks on which it is hatched, by taking it on the back and flying down to the water.



GUILLEMOT.—*Uria troile*

There are several other species belonging to this sub-family, among which may be mentioned the BLACK GUILLEMOT (*Uria gryllé*), known by its smaller size and its black plumage with a large white patch on the wing. The LITTLE AUK, or ROTCHE (*Alle nigricans*), so well known in northern seas, also belongs to the same group.

The Black Guillemot (*Uria gryllé*) is a common inhabitant along our Atlantic coast in winter, where it is called Sea Pigeon.

THE MURRE (*Lomvia troile*) is a common visitor on the Atlantic coast in winter, and also on the North Pacific. It reaches as far south as New Jersey and California. Thirteen other species of Guillemot are known to the American Avi fauna—all inhabiting the North Pacific coast.

THE PETRELS.

THE curious family of the Petrels now comes before us. A well-known example is the STORMY PETREL (*Procellaria pelagica*), known to sailors as the MOTHER CAREY'S CHICKEN, and hated by them after a most illogical manner because it foretells an approaching storm, and

therefore by a curious process of reasoning is taken for its cause. A sailor once told me very frankly, after I had held a short argument with him, that "they mostly takes things wrong side forrards," and so it is with the Stormy Petrel, the pilot-fish, and many other creatures.

A VERY much larger species is the FULMAR PETREL.

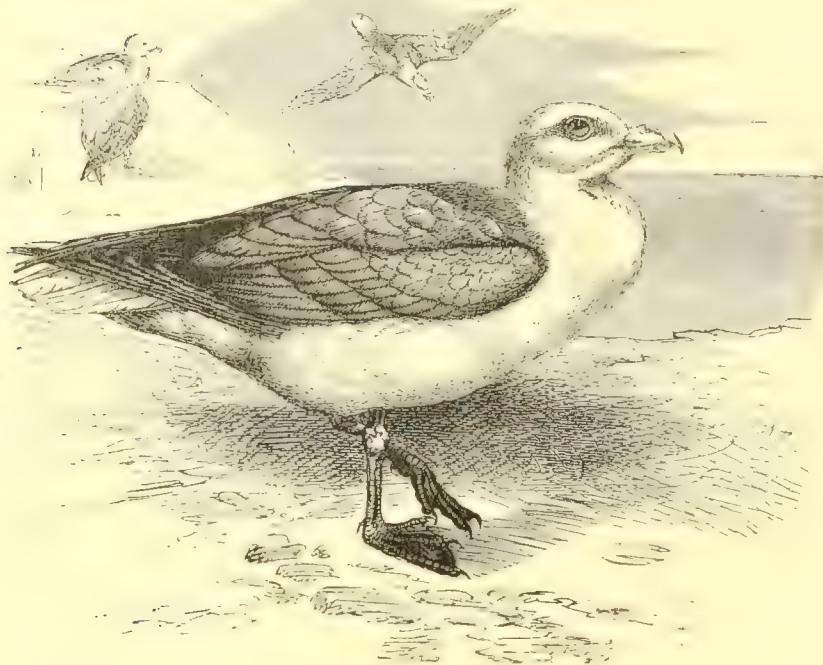
This Petrel is very plentiful in the island of St. Kilda, and an excellent account of the bird and its importance to the inhabitants has been given by Mr. McGillivray, who visited



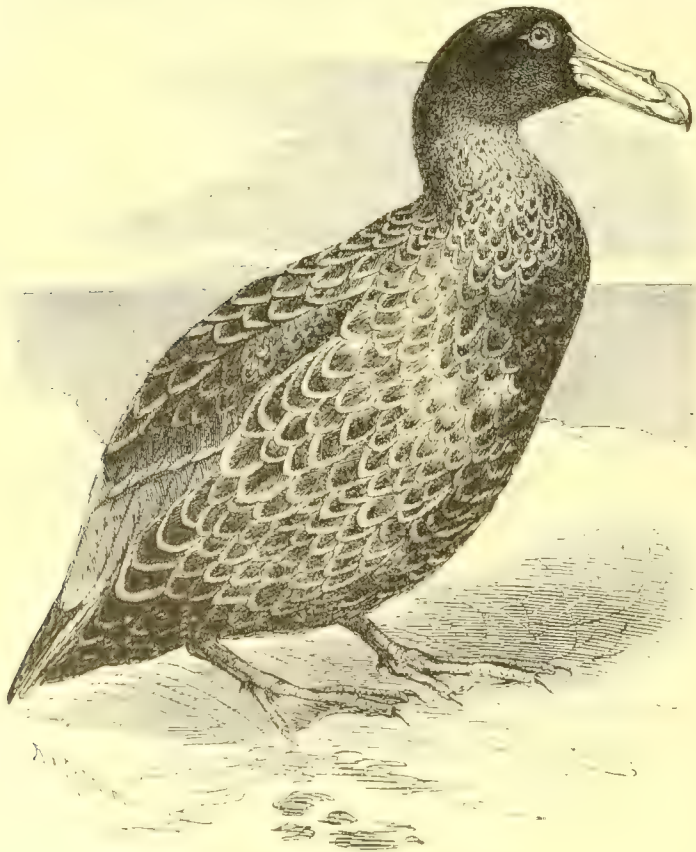
STORMY PETREL.—*Thalasidroma pelagica*.

the island in 1860. "This bird exists here in almost incredible numbers. . . . It forms one of the principal means of support to the inhabitants, who daily risk their lives in its pursuit. The Fulmar breeds on the face of the highest precipices, and only on such as are furnished with small, grassy shelves, every spot on which, above a few inches in extent, is occupied with one or more of its nests. The nest is formed of herbage, seldom bulky, generally a mere shallow excavation in the turf and the withered tufts of the sea-pink, in which the bird deposits a single egg of a pure white color when clean, which is seldom the case."

Leach's, Bulwer's, Black-capped, Least Petrel, Wilson's, Black Petrel, Ashy, Fork-tailed, Hornby's, and White-bellied Petrel are all North American birds—some of them confined to the California coast and northward on the Pacific.

FULMAR PETREL. —*Procellaria glacialis*.

THE GIANT FULMAR (*Ossifraga gigantea*) is the largest of the Petrels ; nearly as large as the albatross. It is common off the Pacific coast. The Fulmars are gull-like in aspect, while the Petrels are much smaller, and are thus contrasted strikingly with the albatrosses.

GIANT FULMAR.—*Ossifraga gigantea*.

The Fulmar Petrel is common to the North Atlantic, visiting the United States in winter. The Slender-bill is equally a Pacific coast bird.

THE BLACK-TAILED SHEARWATER (*Puffinus melanurus*) is an accidental visitor on the coast of California. Several other species are found on the Pacific coast, and others inhabit the Atlantic coast. The Dusky Shearwater is a more southern bird, reaching north only as far as the Middle States. The Greater Shearwater is abundant along the entire Atlantic coast, while the Sooty is confined to that portion above the Carolinas. Altogether there are ten species of this genus.

THE well-known WANDERING ALBATROSS is an excellent example of the next sub-family, being the largest and finest of all the species.

This fine bird is possessed of wondrous powers of wing, sailing along for days together without requiring rest, and hardly ever flapping its wings, merely swaying itself easily from



ALBATROS.

side to side with extended pinions. Sometimes the bird does bend the last joint, but apparently merely for the purpose of checking its progress, like a ship backing her topsails. It is found in the Southern Seas.

THE BLACK-FOOTED ALBATROSS (*Diomedea nigripes*) is abundant on the Pacific coast. The Short-tailed is also common on that coast. Its characteristic feature is its extremely short tail, contrasting strongly with the preceding, as the latter has a long tail. Its length is about three feet, with an extent of wing seven feet. The Sooty Albatross (*Diomedea fusca*), of Audubon, is about the same in dimensions. The Yellow-nosed Albatross is enumerated as an American species.



GROUP OF GULLS.

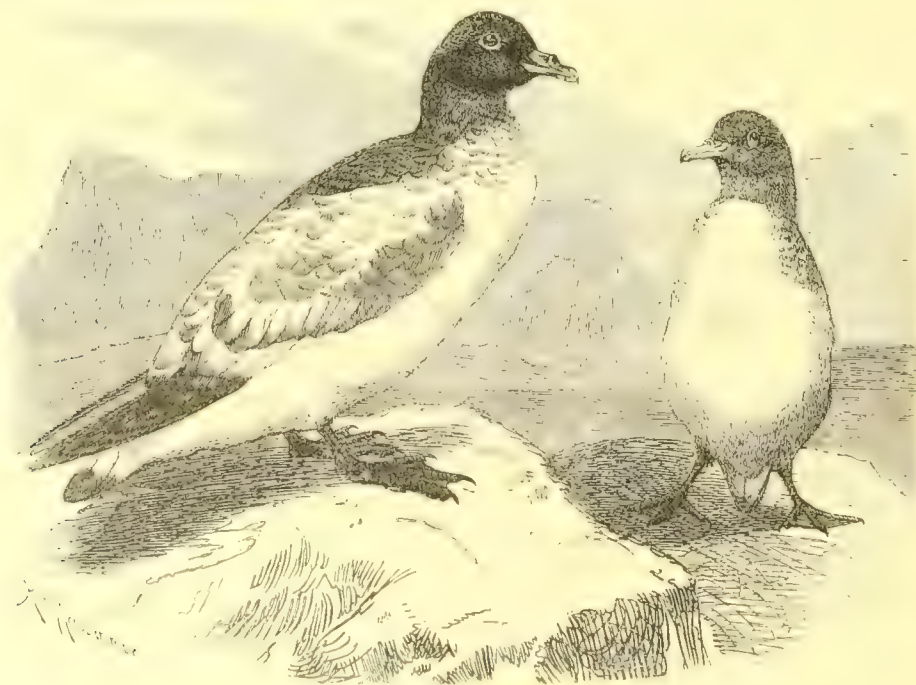
THE GULLS.

THE large family of the Gulls we will discuss here.

The SKUA is a large, fierce, and powerful bird, tyrannizing in a shameful manner over its weaker relations, and robbing them without mercy. It feeds mostly on fish, but prefers taking advantage of the labors of others to working honestly for its own living. As the lesser Gulls are busily fishing, the Skuas hover about the spot, and as soon as a poor Gull has caught a fish, and is going off to his family, down comes the Skua upon him with threatening beak and rocking wings, and when the victim drops his burden, to escape with greater facility, the Skua darts after the falling fish, and snaps it up before it reaches the water. It also eats eggs and the smaller birds, a propensity which is shared by other Gulls than the Skua.

THE SKUA GULL.—*Megalestris skua*.

THE SKUA GULL (*Megalestris skua*) inhabits the seas and coasts of North America, chiefly in the Arctic regions. It is a large, plain-colored bird.

DAPTION, OR CAPE PETREL.—*Daption capensis*.

THE DAPTION, OR CAPE PETREL (*Daption capensis*). This bird is also called Sea-Pigeon. It is especially maritime in its habits, being seen on the ocean, in the semi-tropical and temperate latitudes. It is a plump, pigeon-like bird, allied to the gulls and petrels.

THE POMARINE JÆGER (*Stercorarius pomatorhinus*) inhabits the seas and coasts of Europe, Asia, and America, and is also found in the interior of North America. It is named Gull-hunter in some places.

THE PARASITIC JÆGER is found in much the same localities as the preceding. It has the reputation of being a terror to the Gulls. Though much like the Gulls, it has more of a look of predacious birds, and probably has some of the latter's disposition. The Gulls are usually rather stupid. It gets its living like the hawks, by forcing the Gulls to disgorge. Buffon's Jæger, called also Long-tailed Jæger, is smaller, with two middle tail-feathers, longer than the others. Its range is the same as the preceding. Richardson's Jæger is another American species. It is rare on the coast below Massachusetts. The flight of the Jægers is extremely rapid, and they seem adapted to a predaceous method of pursuing their prey.

THE common GULL is too familiar to need much description, as it is well known to all who have visited the sea-shore, or the mouth of any of our larger rivers. It is a bold bird, caring little for man, and even following a steamer so closely that the gleam of its eyes can be plainly seen. It can easily be tamed, and is a rather useful bird in a garden, destroying vermin of various kinds, and occasionally killing and eating any small bird that may incautiously venture within reach of the strong bill. Cheese seems to be an acknowledged dainty with these birds, which have often been known to contract so great an affection for the place of their captivity as as to return to it voluntarily, and even to introduce a mate to the well-remembered hospitalities.

THE GREAT BLACK-BACKED GULL (*Larus marinus*) is a very fine bird, not very plentiful on northern coasts, but spread over the greater part of the shores of northern Europe.

This bird prefers low-lying and marshy lands, and is popularly known under the name of the Cob. It is very plentiful on the shores of Sweden and Norway, and on some of the islands of Shetland and Orkney it breeds in abundance, the eggs being highly valued on account of their rich flavor and their large size. It is the custom in those localities to lay in a stock of these eggs, and to take two sets in succession, leaving the third for the bird to hatch. Mr. Hewitson mentions that upon an island of barely half an acre in extent, sixty dozen eggs were secured.

THE pretty KITTIWAKE GULL breeds upon the rocky portions of northern coasts. Owing to the diversity of its plumage according to the age, the Kittiwake has been called by several names; "Tarrock" being the best known and belonging to the bird while young. The name of Kittiwake is given in allusion to its cry, which bears some resemblance to that word rather slowly pronounced.

THERE are many other species of Gulls, too numerous to be described. Among these we may notice the LITTLE GULL (*Larus minutus*), remarkable for its jetty-black head and neck and its small size, its length being little more than ten inches; the HERRING, or SILVERY GULL (*Larus argentatus*), a fine species, about two feet in length, with a pure white head and neck, and a soft gray back, and jetty-black primaries, with a spot or two of white at the tips; and the IVORY GULL (*Pagophila eburnea*), so called on account of the pure white of its summer plumage. This is a most beautiful northern species, not often seen as far south as New England. Length, fourteen inches.

The Kittiwake inhabits both hemispheres in the northern regions, reaching New England in winter. Length, eighteen inches. A Pacific Kittiwake is enumerated, and a Red-legged Kittiwake, which inhabits the North Pacific.

The Glaucous Gull, or Burgomaster, is circumpolar in *habitat*, but reaches Long Island in winter. It is the largest of its tribe. The White-winged Gull has the same range as the preceding. It is a complete counterpart of it, excepting in size. Length, twenty-four inches.

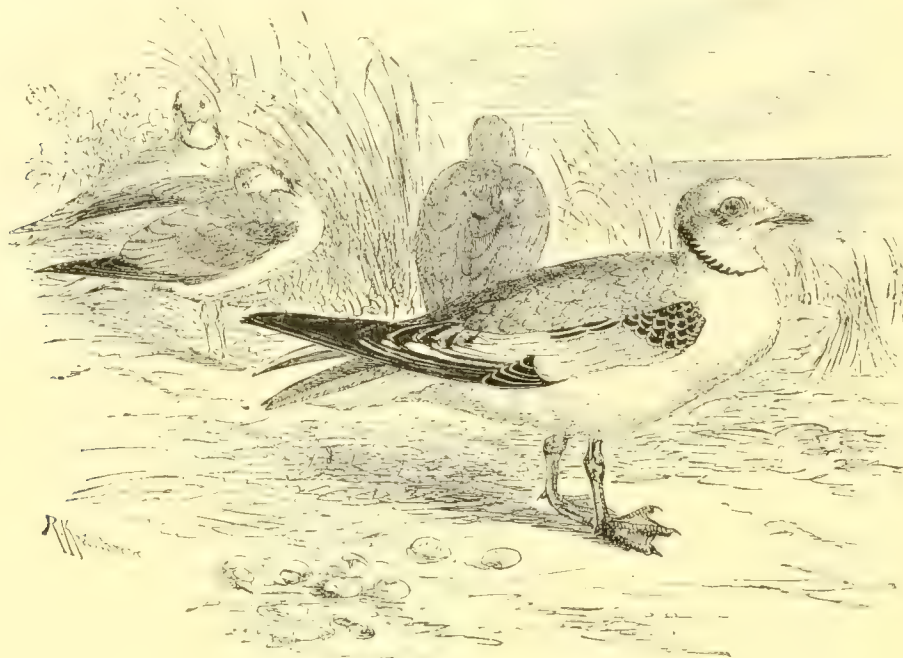
The Glaucous-winged Gull is an inhabitant of the Pacific coast. Length, twenty-seven inches.

This great Gull inhabits the Atlantic coast as far south as Long Island in winter, and, according to Audubon, to Florida. The Western Gull, Siberian Gull, Herring Gull, and two other species of Herring Gull are mentioned as North American species.

The California Gull is found on the Pacific coast. The Ring-billed Gull and Short-billed

are rather new species, not familiar to the general reader, as, indeed, is the case with several others, all of which we indicate, as it is thought desirable to keep a general view of all the American species, though we may not find it desirable to add any considerable details. Other species inhabiting North America are the Mew, Heerman's Gull, Laughing Gull, Franklin's Gull, Bonaparte's, Ross's, Sabine's, and Swallow-tail.

The Laughing Gull is very common on our South Atlantic and Gulf shores, where it has a habit of chasing the pelicans and causing them to share food with them.



ROSS'S GULL.—*Rhodostethia rosea*.

THE name of SCISSOR-BILL (*Rhynchops nigra*), is very appropriately given to this species.

This remarkable Gull has a long and much-compressed beak, the lower mandible being much longer than the upper, rather flatter, and shutting into the upper like a knife-blade into the handle. The Scissor-bill is found along the coast of America and part of Africa. This is also called the Black Skimmer, or Cut-water, from its remarkable shears-like bill. It is seen off the Jersey coast and southward. The singular bill is the only unusual feature. From its habit of scooping its bill along the surface of the sea for its food, it is called Skimmer.

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